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Monthly Message

Many tributes have appeared in the press following the passing of the late General of the Army George C. Marshall, but one of the most moving and imaginative was in a sermon by the Dean of the National Cathedral in Washington: General Marshall "dared a great country to be generous" and incidentally gave this country a new idea of service to the world.

General Marshall was far more than a great soldier. He was a great statesman not only in this country, but truly a statesman of the world, interested in its rapid reconstruction and the maturing of civilization toward a peaceful future. In the winter of 1919 in World War I, while awaiting my return to this country from Dijon, France, the then Colonel Marshall was sent by General Pershing to various places to narrate the strategy of the American Expeditionary Force from the date of its commitment in Europe. As a very young man I was greatly impressed with his presentation for its clarity, its conciseness, and its humility of expression. I recall writing to my family that evening that I had just heard a very fine talk from a young colonel whose destiny promised greatness. How little did I realize then that this prophecy born of enthusiasm would be fulfilled and that I would have the honor of serving under him for a second time.

His address at the Harvard Commencement, when he outlined the Marshall Plan, electrified the world; and it was in that address and in the conception of his plan that he had the vision to "dare a great country to be generous."

Frank B. Berry

FRANK B. BERRY, M.D.
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Respiratory Allergies in Alaska

Clinical Analysis, Pollen Survey, and Botanic Review

CAPTAIN ROLAND W. MOSKOWITZ, USAF, MC

WITH ALASKA ASSUMING greater importance in the light of its recent admission to statehood and its rapidly increasing population, a medical evaluation of its various health problems becomes more vital. Among the fields requiring closer study is that of the respiratory allergies. While the author was stationed at the U.S. Air Force Hospital in Fairbanks, Alaska, the department of otorhinolaryngology and the medical outpatient services noted that a relatively large number of respiratory allergy cases were being seen, including perennial vasomotor rhinitis, seasonal allergic rhinitis, and asthma. A common belief has been that illnesses of this nature are infrequent in a climate such as this.[1] Review of the literature, however, as well as communication with one of the larger allergy laboratories in this area, reveals that there have not been any complete botanic surveys of Alaska pertaining specifically to hay fever-producing plants.[2] Similarly, in a study of atmospheric allergens in Alaska in 1939, it was noted that there were no reports available at that time concerning clinical allergy in Alaska.[1] Accordingly, the present survey was set up to obtain information on the types of respiratory allergy observed, their incidence, and the factors affecting these diseases, such as pollen counts, physical factors, and botanic surveys.

CLINICAL SURVEY

The population studied was that of a moderately large military community. Cases of typical perennial rhinitis, seasonal allergic rhinitis, and asthma were referred to the author for evaluation and study.

From U.S. Air Force Hospital, Ladd Air Force Base, Alaska. Dr. Moskowitz is now a fellow in medicine, Mayo Foundation, Rochester, Minn. This study was supported by a grant and facilities of the U.S. Air Force Arctic Aeromedical Laboratory.

A history and physical examination were performed on each patient along with a leukocyte count, differential, nasal smear, and sinus and chest roentgenograms where indicated. For several reasons, not all patients with respiratory allergy were evaluated. Patients who had no difficulty with their illness during their stay in Alaska were not seen. Other patients could not be evaluated because of various exigencies such as military leaves, shortages of personnel, and time lost from duty. Following the clinical evaluation, patients were studied as to the course of their disease in Alaska and the factors relating to this were analyzed.

Results. Analysis of the charts of 28 patients revealed the following:

1. Diagnoses: There were 17 diagnoses of perennial vasomotor rhinitis, 6 of seasonal allergic rhinitis, and 8 of allergic asthma. Some patients had more than one clinical entity.

2. Sex: There were 14 males and 14 females in the study.

3. Age: The range was 3 years to 38 years, reflecting the young population studied.

4. Duration of symptoms: The shortest period was 6 months and the longest 30 years.

5. Allergens, according to history: This pertains to allergic factors involved at any time during the patient's history. It does not necessarily mean that a specific allergen was causing symptoms in Alaska at that time. The allergens and numbers of patients affected were as follows:

Ragweed 3	Smoke 1
Grasses 6	Wool 1
Trees 3	Molds and fungi 2
House dust 9	Upper respiratory infection 1
Dog or cat danders 5	Psychogenic 2
Feathers 2	Unknown factors 9
Paper lint 1	

6. Time of year: There were 21 perennial cases and 12 seasonal cases. Several patients had multiple disease complexes.

7. Symptoms while in Alaska: In 3 patients symptoms improved, in 14 they were aggravated, and in 10 they remained unchanged. Information about 1 patient was lacking.

Comment. The symptom complexes comprised the several types of respiratory allergies, including perennial vasomotor rhinitis, seasonal allergic rhinitis, and both seasonal and perennial asthma. It is apparent from the study that these allergies do exist in this subarctic climate, and often become worse in this area than in a more temperate climate. It will be noted that the symptoms of 51 percent of the

patients became worse while they were in Alaska. This high incidence was to be expected, however, because only those patients who were clinically active were likely to be seen, while symptom-free patients might not be included in the study. The respiratory allergies constituted a major group of diseases observed in the Fairbanks area and were the cause of considerable man-hours lost.

A review of the allergenic factors concerned in the patients studied reveals that only 3 patients might be expected to have improved in Alaska because of the absence of ragweed, as ascertained both on botanic survey and by pollen studies. However, inasmuch as 2 of these patients had multiple allergies, they were not necessarily free of symptoms while in this area.

Factors other than specific allergens make the Alaskan military residents unusual in their susceptibility to these diseases. Emotional adjustment to the difficult subarctic life made the psychogenic factor a moderately important one. Very low humidity was a second factor that increased physical susceptibility to respiratory tract symptoms. Many families attempted to overcome this drying effect on the mucosa with humidifying procedures, but many patients were seen who had a nasopharyngitis solely because of drying. It can readily be conceived that a person suffering from a perennial vasomotor rhinitis is more likely to have symptoms in this subarctic environment than elsewhere. Heavy clothing was a third factor that introduced a considerable amount of allergens into the home. At the same time, ventilation was almost nonexistent because of constantly closed windows and heavy insulation.

Laboratory studies confirmed the clinical impressions in many instances and, at times, were the initial indication for an allergy survey in certain patients, such as those presenting with nasal polyps. Of 21 patients on whom leukocyte and differential counts were performed, 7 or 33 percent had eosinophil percentages above normal, 4 percent or higher. Of 12 patients whose nasal smear was examined for eosinophils, only 2 had elevations that would be considered abnormal. Roentgenograms of the paranasal sinuses revealed some pathologic change in 13 of 23 patients or 56 percent, in 5 of whom it could be considered severe. In 14 patients chest roentgenograms were done, all reported as being within normal limits.

POLLEN SURVEY

Pollen counts were carried out approximately three times a week. For this the standard gravity-sampling device used [3] was placed on the farthest corner of the hospital roof, as far as possible from any

obstruction. A slide area 4.84 cm square was counted after a 24-hour exposure and converted to pollens per square centimeter, using Calberla's solution for stain. The months of July 1956 through November 1956 were included in the study, providing a representative sample of summer and fall months.

Table 1 gives the incidence of pollens and mold spores by monthly distribution. Each slide was exposed for a period of 24 hours. The figures in parentheses represent the total pollen count on each slide for a given month using 4.84 sq cm, the area under the cover slip, as the counting area. The open figures represent the pollen or spore count for a given month after reducing the area of counting for each slide to 1 sq cm. Both figures are reported in order to include certain pollens that occurred in very small numbers. For the period studied, the pollens and spores of significance appear to be Gramineae and mold spores.

Table 1. ***Monthly distribution of pollens and mold spores***

	July (12 slides)	August (14 slides)	September (12 slides)	October (14 slides)	November (6 slides)
Betulaceae (birches and alders)	(10) 2	(1) 0	(0) 0	(1) 0	(2) 0
Chenopodiaceae (goosefoot)	(30) 6	(7) 1	(0) 0	(0) 0	(0) 0
Compositae (sunflowers)	(1) 0	(2) 0	(0) 0	(0) 0	(0) 0
Cyperaceae (sedges)	(2) 0	(2) 0	(1) 0	(0) 0	(0) 0
Ericaceae (blueberry or heath)	(0) 0	(1) 0	(0) 0	(0) 0	(0) 0
Gramineae (grasses)	(110) 23	(15) 3	(9) 2	(1) 0	(0) 0
Lycopodiaceae (club moss)	(1) 0	(60) 12	(9) 2	(0) 0	(0) 0
Pinaceae (spruces and pines)	(3) 1	(0) 0	(1) 0	(0) 0	(0) 0
Salicaceae (willow)	(3) 1	(1) 0	(3) 1	(1) 0	(0) 0
Mold spores	(41) 8	(795) 164	(158) 32	(2) 0	(0) 0
Undetermined	(0) 0	(13) 3	(8) 2	(0) 0	(0) 0

Comment. As mentioned earlier, the significant pollens and spores consisted of Gramineae and mold spores. The pollen and mold count fell markedly during October and November, and it is believed that this absence of air-borne allergens would persist throughout the winter months while snow was on the ground. Although it is possible that allergens may be carried great distances and then be recovered on slides, even though all vegetation in this region was covered, studies suggest that there is in fact little settling of pollen transported from great distances, even if it is present in the middle and upper air.[4] It is likely that a gradual increase in pollens would recur about mid-April and May, as warmer weather appeared. It is further noted that the spore and mold studies consisted of outdoor samples only, so that the significance of these elements indoors has yet to be

determined and could well be significant in the maintenance of perennial rhinitis. It is highly significant that no ragweed was present on any of the slides, confirming the findings of Durham in a 3-month study in 1939.[1,5] In his report, covering the months of July, August, and September in Nome, Fairbanks, and Juneau, Fairbanks was found to have the fewest pollen grains and the most spores, while Nome had the fewest spores and the most pollen. Grass pollen constituted over two thirds of all pollen seen in that study. The author concluded that the possibility of inhalant allergy from pollen and spores in Alaska was remote, and was confined to a few days of light exposure to grass pollens in late June and early July in southern and central Alaska, and a month later in the vicinity of Nome. Stier [6] states that in his experience, however, with special reference to southeast Alaska, this does not necessarily hold: that patients who have symptoms from grass and mold sensitivity in the Seattle-Vancouver area will invariably have symptoms in the southeast area of Alaska when the grasses and weeds are actively pollinating. This latter impression would be more consistent with the author's experience, in that inhalant allergy was responsible for clinical symptoms in a number of patients in the Fairbanks area, and over a considerable portion of the year.

BOTANIC SURVEY

The botanic survey was based on available literature, leaning heavily on Hulten [7] and Anderson,[8] and on recent biologic surveys in Alaska,[9] which were concerned with the presence of allergenically significant plants in the Fairbanks region.

The vegetation of interior Alaska is that of the northern coniferous forest that extends through some 10 degrees of latitude across North America. Spruces, tamarack, quaking aspen, balsam, poplar, and paper birch are the only trees present. These frequently occur in dense stands; but as a result of forest fires, logging, mining, and agriculture, many areas have only sparse forest cover. Dense growths of willows, alders, dwarf birches, and ericaceous shrubs are the dominant vegetation in second growth stands. In other areas grasses, sedges and various herbaceous plants are locally abundant. The ground surface is almost invariably covered with dense growths of lichens and mosses, especially in areas where the soils are perpetually moist from melting soil ice, permafrost, beneath.

A listing of the allergenically important vegetation in the Fairbanks area and its relative abundance there follows. Other allergenically important plants were evaluated for their presence in this

area, but only those mentioned were found in any significant number.

1. *Trees.* Spruce, both black and white; paper birch; aspen; and cottonwood, balsam, poplar; are moderately abundant. Tamarack is present but in relatively light amount.

2. *Grasses.* Blue-joint grass and squirrel-tail grass are present in moderate abundance. Barley; smooth brome grass; meadow fescue; red fescue; sheep fescue; June grass, cultivated; orchard grass; quack grass; rye, cultivated; slough grass; and wheat, cultivated, are also present, but in relatively small amounts.

3. *Shrubs and weeds.* Dwarf birch, willow, and alder are moderately abundant, while bulrush, dandelion, goosefoot, lamb's-quarters, nettle, mustards, common plantain, sagebrush or wormwood, sheep sorrel, and juniper are present but in relatively light amounts.

4. *Miscellaneous.* Wild rose is present in moderate abundance. Alfalfa, cultivated; aster; yellow clover, cultivated; daisy; lily; vetch; and yarrow are present in light numbers in this same area.

It is hoped that this listing of allergenic plants in the Fairbanks area will provide information for more intelligent therapy and desensitization of patients in this area. A complete correlation between the plant survey and pollen findings is not possible because pollen was not collected in the tree-pollinating season and in part of the grass-pollinating season. In addition, pollens may have been missed if the plant represented was not especially abundant in this localized area. A review of the positive pollen findings, however, does reveal a definite correlation between pollens found and plants seen in this area. More specifically, pollens of grasses, alder, spruce, goosefoot, birch, yarrow, and willow were identified on the pollen slides exposed, and were noted in varying abundance in the botanic survey.

SUMMARY AND CONCLUSIONS

Clinical analysis, pollen review, and botanic survey relative to respiratory allergy in Alaska have been carried out. Twenty-eight cases of respiratory allergy, including perennial vasomotor rhinitis, seasonal allergic rhinitis, and asthma are analyzed. Sources of allergens, according to patients' histories, included trees, grasses, ragweed, house dust, dog or cat danders, feathers, paper lint, smoke, wool, molds and fungi, and upper respiratory infections. Unknown factors were operative in 9 cases. Symptoms became worse in 14 patients, unchanged in 10, and improved in 3 during their residence in Alaska.

Pollen counts performed three times weekly from July through November revealed many pollen types to be present. For the period

studied, however, only those of Gramineae or grasses and mold spores were present in significant number.

The botanic survey reviews the allergenically significant vegetation found in the Fairbanks area. The listing includes a moderate number of trees, grasses, weeds, shrubs, and miscellaneous plants. It is significant that ragweed was absent both on pollen count studies and upon botanic review.

It is believed that factors other than specific allergens make this area unique in the susceptibility of its population to these diseases. These factors include (1) the necessity of psychogenic adjustment to subarctic living; (2) very low humidity of the air with consequent drying of the respiratory passages, and (3) the heavy materials used for clothing and bedding, including animal furs, woolens, and cottons, that added considerably to antigen accumulations in the home, while interior ventilation was not improved by constantly closed windows and heavy insulation.

Respiratory allergies do exist in this area and require the usual considerations in study and treatment. Further investigation is recommended to obtain a complete pollen survey for a 12-month period, as well as mold and spore analyses on an indoor basis.

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THE PRICE FOR SURVIVAL

The medical disaster plan must take into account the care of mass casualties from nonmilitary causes as well as those resulting from a nuclear attack and from chemical and biological warfare. The care probably would have to be carried out under conditions of evacuation. Babies will be born, diabetic persons will require insulin, communicable diseases as well as the normal illnesses will be present, and food, clothing and shelter will be required. The rotation of personnel, a system of records and reporting of information for patients and others, the use of utility and mortuary services, blood banks and the coordination of communications and supplies are some of the many things that would present problems during a major disaster. If a disaster occurred from a military attack, from all indications it is quite possible that local areas would have to subsist for as long as two weeks without much direct relief. Certainly, for the first few days little outside help of any type can be anticipated. . . . Time is precious and we cannot turn the clock back. We must learn as much as we can about the mass care of casualties, about how to survive under the most trying of circumstances. We must know what our own individual responsibilities will be during a major disaster, we must practice the ways to meet them—learn how to use what we have and where it is located. . . . The price for survival is to be prepared.—JUSTIN J. STEIN: Medical Preparedness for Disaster. *California Medicine*, May 1959.

Traumatic Mediastinal Hematoma

LIEUTENANT JOHN R. WILLIAMS, MC, USN

MEDIASTINAL TUMEFACTIONS have evoked considerable interest during the past several years, but review of the literature[1-27] reveals only a few reports of traumatic mediastinal hematomas.

The potentiality of nonpenetrating chest trauma has been known for many years. In 1884, Erichsen[1] stated: "Contusion of the lung without injury to the pleura covering it may happen from severe blows on the chest, as from falls from horseback or kicks on the side. It may be complicated with fracture of one or more ribs; but this is not necessarily a concomitant of the injury." A traumatic mediastinal hematoma appears to have been first reported by Körner,[2] who in 1916 described a soldier who developed a posterior mediastinal hematoma following a nonpenetrating grenade blast. Horn,[3] in 1930, observed a mediastinal hematoma after a patient had sustained a laceration involving the left internal mammary artery.

Three cases of paravertebral intramediastinal hematomas were presented by Eiselsberg and Gold[4] in 1931. The patients had sustained injury resulting in compression fractures of the dorsal or lumbar vertebrae. Zimmerman,[5] in 1936, encountered a patient who had received a lateral crushing chest injury with resultant fractures of ribs, left clavicle, and right scapula, as well as a mediastinal hematoma. More recently, other authors[6-11] have presented cases of mediastinal hematoma incident to nonpenetrating trauma.

The following case reports illustrate mediastinal hematomas resulting from both penetrating and nonpenetrating trauma.

CASE REPORTS

CASE 1. This 18-year-old youth was involved in an automobile accident in which he was thrown from the car and hurled against a wooden post. Before transfer to this hospital he was seen at a dispensary, where tenderness in the left pectoral area was noted. A small anterior axillary laceration was sutured. On admission, the patient complained only of left chest pain. Physical exami-

From U.S. Naval Hospital, Jacksonville, Fla.

nation revealed diminished breath sounds in the lower chest. Subcutaneous emphysema was noted at the site of the sutured laceration.

The chest radiograph (fig. 1) revealed a bilateral linear widening of the mediastinum, most prominent on the right. Pulmonary contusive changes were noted, involving primarily the left lower lobe. A minute amount of free air was seen at the extreme apical portion of the left chest. No rib fractures were noted. A lateral radiograph (fig. 2) showed a semispherical soft tissue density in the substernal area. The sternum did not reveal fracture. Serial radiographs revealed contraction and resolution of hematoma and pulmonary contusive changes. Nine weeks following the accident a posteroanterior roentenogram showed only residual pleuritic changes at the left base, with no evidence of hematoma (fig. 3); the lateral projection showed persistence of the substernal mass but with considerable diminution in size (fig. 4).

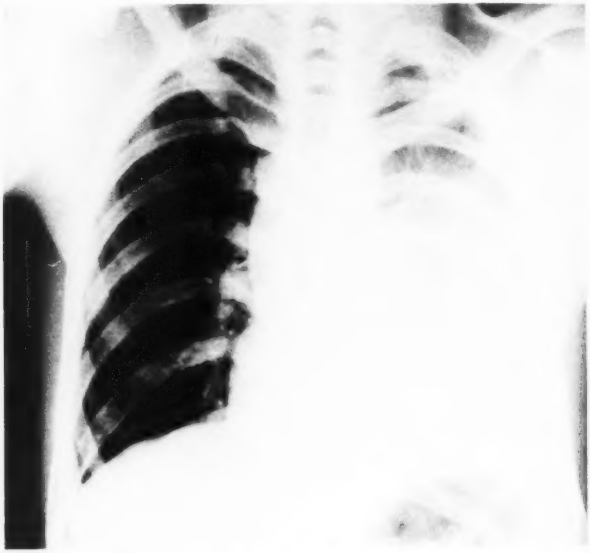

Figure 1 (case 1). Initial roentgenogram showing bilateral widening of the mediastinum, particularly on the right. Parenchymal contusive changes are seen on the left.

The patient continued to have left chest pain and an exploration at the site of the previous laceration was done. Initially no foreign body was found, but when the incision was extended to the substernal area, 3 wooden splinters, each 1 to 2 cm in length, were removed. Subsequently the patient was asymptomatic.

CASE 2. This 19-year-old girl was admitted to this hospital shortly after an automobile accident. The patient was conscious but in a state of shock. Physical findings revealed a blood pressure of 80/40 mm Hg, multiple abrasions over the face and extremities, and tenderness of the right hip and left shoulder.

Anterior chest tenderness to firm palpation was noted. The abdomen revealed guarding and tenderness of palpation in the left upper quadrant.

Radiographic examination of the chest (fig. 5) in the anteroposterior projection revealed bilateral linear widening of the mediastinum, compatible with

Figure 2 (case 1). Lateral roentgenogram revealing a semispheroid substernal mass (indicated by arrows). Parenchymal contusive changes are noted primarily in the left lower lobe.

hematoma. No tracheal deviation was noted. A fracture of the lateral aspect of the left clavicle was seen, with the fragments in good position and alignment. Pelvic radiographs revealed fractures of the right acetabulum and pubis. A plain film of the abdomen (fig. 6) showed an accentuated, serrated appearance of the superior aspect of the greater curvature of an air-containing stomach. The spleen was not discernible. Splenic rupture was suspected and surgical intervention confirmed this impression. A splenectomy was performed. At operation, hemorrhage along the gastrolienal ligament was noted.

The patient did well following the operation. There were no complaints of chest pain, shortness of breath, or dysphagia. An anteroposterior chest radio-

Figure 3 (case 1). Roentgenogram 9 weeks after the accident. The mediastinum is of normal width. The contusive changes have resolved.

graph (fig. 7) 14 days after the accident revealed complete resolution of the mediastinal hematoma with the mediastinum showing normal contour and width.

DISCUSSION

Cognizance of the potential development of mediastinal hematomas following both penetrating and nonpenetrating chest trauma is most important. Since resolution is the usual course of the hematoma, close observation with serial roentgenograms is helpful in differentiat-

Table 1. *Features of traumatic mediastinal hematoma*

Author	Trauma	Associated changes	Time for resolution	Unusual findings

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Table 1. ***Features of traumatic mediastinal hematoma***

Author	Trauma	Associated changes	Time for resolution	Unusual findings
Körner [2]	Blast injury	Displaced esophagus and trachea	No change in 23 weeks	Dysphagia
Horn [3]	Stab wound	Laceration	6 weeks	Dyspnea
Eiselsberg and Gold [4]	(1) Diving accident	Compression: D–8	24 weeks	
	(2) Bicycle accident	Fractures: L1–L2	1 week (partial)	
	(3) Fall: 3 stories	Fractures: D6–D7	Died 6 hours after accident.	
Zimmerman [5]	Crushing injury	Fractured clavicle, ribs, scapular spine, pulmonary contusion	21 days	
Schmitt [9]	Auto accident	Fractured ribs, sternum, interlobar hematoma	Died 14 days after accident	Tear left diaphragm
Duyster [6]	Direct blow	No fracture	Approximately 21 weeks	Difference in blood pressure of upper extremities
Vincent et al [11]	Accidental fall: 50 meters	No fracture	Died 2 days after accident; autopsy revealed hematoma	
Endress [7]	(1) Auto accident	No fracture	18 days	Distention of neck veins
	(2) Auto accident	Fractured sternum	No follow-up	
Laforet [8]	Auto accident	Tracheal displacement, fractured ribs, questionable fractured sternum	15 days	Horner's syndrome
Thomas and Keeling [10]	Auto accident	Fractured clavicle, ribs	14 days	
Author's cases	(1) Auto accident	No fracture	9 weeks	Foreign body: wood splinters
	(2) Auto accident	Fracture of left lateral clavicle	14 days	Ruptured spleen

ing this entity from neoplasm or aneurysm. In the cases reported by this author, diminution in width of the mediastinum was apparent after a week. As indicated in table 1, time for complete resolution of the hematoma may vary considerably. The range of the observed cases is from 2 to 24 weeks, with the average time being 7.3 weeks.

Figure 4 (case 1). Lateral roentgenogram on same date as figure 3, showing small discrete substernal density representing contracted hematoma and foreign body.

Symptomatology. The symptoms resulting from a mediastinal hematoma may vary considerably, and no specific clinical finding or complaint is pathognomonic of this entity. As indicated in table 1, such findings as distention of neck veins, dysphagia, shortness of breath, and Horner's syndrome may occur. Severe shock and difference in the blood pressure of the upper extremities have also been reported. There may, however, be no significant symptomatology.

Hemorrhagic site. Mediastinal hematomas secondary to nonpenetrating trauma appear to result from disruption of small veins draining the mediastinal branches of the internal mammary and intercostal arteries or the aorta. Mediastinal hematomas encountered in patients with fractures of the sternum and dorsal vertebrae are obviously secondary to these fractures.

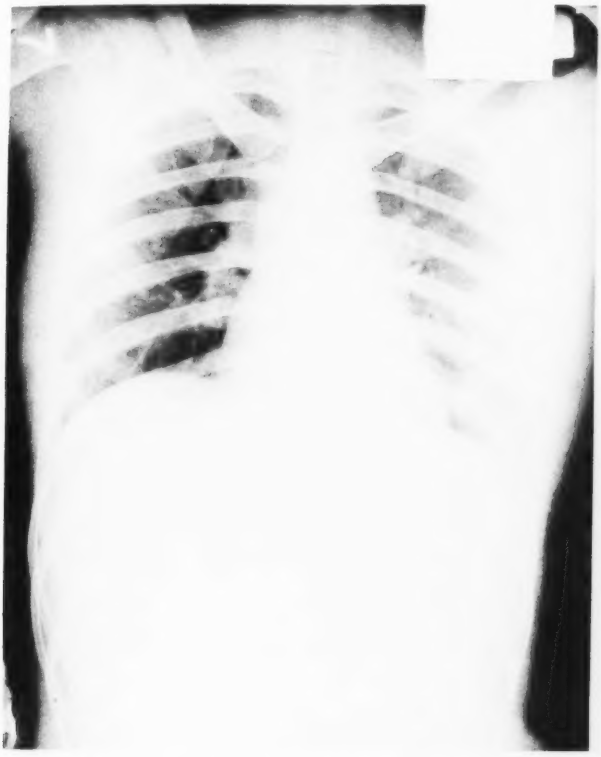

Figure 5 (case 2). Anteroposterior roentgenogram with bilateral linear widening of the mediastinum representing hematoma.

Roentgenographic findings. Initially, mediastinal hemorrhage presents as a diffuse, linear, unilateral or bilateral mediastinal widening. As organization and contraction of the hematoma occurs, it becomes smooth and concentric, simulating neoplasm or aneurysm. With serial roentgenograms, this early change is important

in differentiation of mediastinal hematomas from other pathologic entities. As emphasized by Endress,[7] the initial chest radiograph is usually in the anteroposterior projection; consequently the mediastinal widening may be either overlooked or considered insignificant.

The possibility of aortic rupture should be considered in the differential diagnosis when a mediastinal hematoma is observed. When progressive mediastinal widening is noted on serial radiographs, aortic rupture becomes the most likely source of hemorrhage.

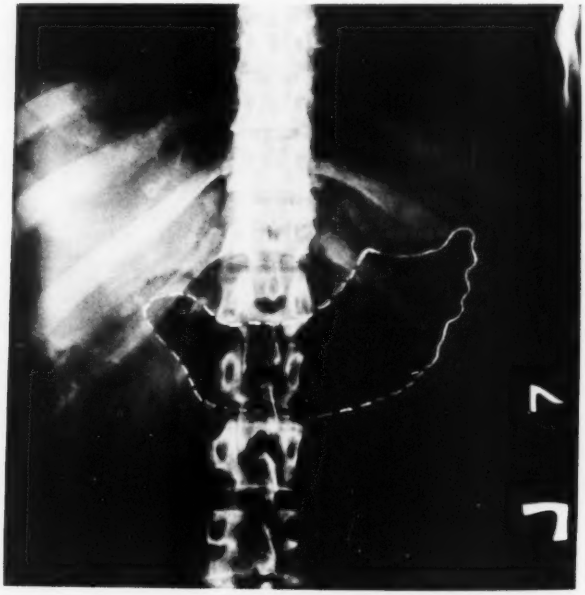

Figure 6 (case 2). Abdominal roentgenogram showing serrated outline of the air-containing stomach in the superior portion of the greater curvature, suggesting hemorrhage along the gastrolienal ligament from ruptured spleen.

The substernal hematoma is seen in the lateral projection as a semispheroid mass adjacent to the posterior aspect of the sternum. As noted in case 1, the hematoma, after partial resolution, was seen only in the lateral radiograph.

Eiselsberg and Gold [4] describe the paravertebral intramediastinal hematoma as a fusiform density having its greatest width at the site of the vertebral body fracture.

Associated findings such as esophageal and tracheal deviation, fractures of vertebrae and sternum, pulmonary contusion, interlobar hematoma, pulmonary hematoma, and hemothorax may be present.

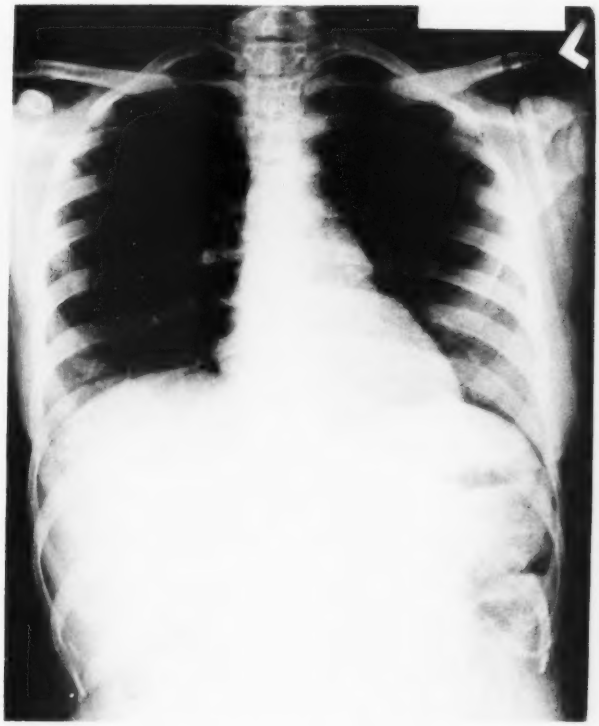

Figure 7 (case 2). Anteroposterior roentgenogram 2 weeks after the accident, revealing normal mediastinum.

Treatment. From review of the literature, it becomes apparent that the prognosis in most patients with mediastinal hematoma is usually good. Those who succumb usually have concomitant traumatic changes causing their death. Only a few patients require treatment for the mediastinal hemorrhage. Definitive therapy consists of decompression of the mediastinum in patients with cardiorespiratory embarrassment. Patients with aortic rupture require surgical grafting when this is feasible.

SUMMARY

Two cases of mediastinal hematoma secondary to chest trauma are reported. A review of the literature is presented with emphasis upon the roentgenographic findings, treatment, hemorrhagic site, and symptomatology. The importance of following post-traumatic chest lesions with serial radiographs until resolution is complete is stressed.

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THE DIFFERENCE IN THE SPECIES

One of the most important medical problems being studied today is seriously hampered by an unusually large number of species differences. Among the key points of attack in the investigation of the causes of coronary heart disease is the lack of correlation between findings in man and those in a host of experimental animals, a circumstance which has become the rule rather than the exception. The morphologic features of the atheromatous plaques that are produced by extreme elevation of blood cholesterol in the experimental animal do not reflect in all details the condition found in man. The development of a thrombus at the site of the atheroma has not been accurately reproduced in the laboratory animal. The intricate biochemical steps in the blood-clotting and plasmin systems in man differ in important ways from those in other animals. The pattern of lipoproteins, particularly the ratio of the so-called α and β fractions and the influence of dietary fat on these fractions, are not the same for man and his laboratory counterpart. The effect of fat ingestion and the influence of the degree and type of unsaturation of the fat on the level of blood cholesterol frequently does not follow the same pattern when one moves from man to various other animal species.—RICHARD H. BARNES: The Span From Rat to Man. *New York State Journal of Medicine*, August 1959.

Interaction Patterns Among Military Prison Personnel

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THIS STUDY is directed toward an understanding of the social relations of a penal institution. With the impact of delinquency on the American scene, greater demand is being placed on the social sciences for answers. A critical area is that of the penal institution, society's time-honored method of handling the delinquent. Despite its shortcomings, the penal institution remains the necessary, if not the only, means of dealing with many delinquents. Any scientific utilization of existing penal facilities calls for an understanding beyond the conventional and material dimensions of the institution.

A dynamic understanding of the penal institution is not readily achieved. The psychiatrist entering a penal institution is impressed by the enormous barrier existing between himself and the prison population, both inmates and personnel. The penal institution exists for the restraint and punishment of offenders. Suspicion and secrecy are the order of the day. An unwritten but well-established prison code has set the prisoner against any confidential communication with authority.[1] The custodial officers, on the other hand, are immersed in similar attitudes of vigilance. They have a nerve-racking job to do and their interest is centered about maximum security, discipline, and a convenient, autonomous daily routine.[2]

The psychiatrist, placing a high premium on individual needs and freedom of communication, finds his standards in marked contrast to the base line of penal regulations and attitudes. Powelson and Bendix [2] considered this conflict of attitudes between the psychiatrist and the custodial officer and concluded that, for the present, there is no satisfactory professional solution for the psychiatrist who chooses

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to remain and work in the penal institution. They pointed up the corrosive influence of the prison environment on the psychiatrist's attitudes and his eventual conscious or unconscious surrender to authoritarianism. In addition to this conflict in his own values, the professional worker may encounter difficulty because of his appearance to custodial officers as a potential reformer or theoretician—the perennial conflict between the planner and executor of any operation. The custodial officer is intent on a well-oiled daily routine. He may be suspicious and disdainful of change, considering it as unproven, dangerous, or impractical. In discussing his experiences as an innovator on a prison psychiatric ward, Graff [3] stated that the guards sometimes viewed the psychiatrist as "on the side of the inmates" against them. In this respect, it is of interest that wardens have found themselves relatively powerless when attempting to alter the basic attitudes or practices of their lower personnel echelons toward the prisoners.[4, 5] It would seem, then, that our successful intervention in the penal institution must begin with an understanding of the institutional ties of the individuals within it.

Much of the groundwork for understanding the penal environment has been done but the dynamics of the personnel remain largely uncharted. The emphasis in penal psychology has usually been on the inmate. As in the case of the mental hospital, investigation of the occupant has long preceded that of the custodian. Clemmer has provided the basis for an understanding of the prison environment in his comprehensive monograph [6] but has reported few observations on the social field of the personnel. Clemmer described the prisoner's culture and its dynamics, demonstrating the stability of this culture despite population flux. Although acknowledging the stabilizing influence of the prisoner's code, Miller [1] has pointed out its antirehabilitative and tyrannical effects, particularly when utilized by the custodial officers to maintain order. That a corollary personnel culture must exist side by side with this prisoner culture is apparent and has been alluded to in the fictional, if not the scientific, literature.

The present report is based on observations of 5 military penal institutions: 3 Marine Corps brigs, 1 Navy brig, and 1 Army stockade. It is felt that the institutions observed are representative of most military penal institutions, and that some of the information may be applied as well to problems of penal institutions generally.

One of the Marine Corps brigs will be used as the focus for the description, although observations from all five institutions contributed to the conclusions. As a military psychiatrist, the writer was able to make direct observations of the brig and collect information from its population over a 1-year period. The military psychiatrist

was called on for formal brig inspections, screening of personnel for brig duty, screening of prisoners for retention in service, and psychiatric treatment of personnel and prisoners. In addition, there were chance observations while transacting the formal brig matters, group discussions with personnel, and social contacts with brig officers. The discussion groups contained 4 to 8 men having the same rank or brig function and were conducted in a nondirective manner, ostensibly concerned with prisoner management.

OBSERVATIONS

The formal trappings of the brig were that of a rigid military hierarchy, operating on a detailed daily schedule for both prisoners and personnel. The philosophy and functioning of the brig were stated meticulously in a brig manual, always on hand for policy decisions and instruction of incoming prisoners and personnel.

The physical plant of the brig is traditionally divided into 2 areas, the compound and the office. The compound is the prisoner's living area. In the particular brig under consideration, the compound was a large square enclosure, enclosed by a double barbed-wire fence, entered by a single gate, and punctuated at regular intervals by wooden frame watchtowers. The office was a small painted wooden building outside the compound near the gate. Here the administration of the brig was carried out, records kept, and orders issued.

The brig was operated by 33 officers and men. The hierarchy was headed by 2 commissioned officers. Next in line to the officers was the staff, composed of 4 senior noncommissioned officers, 1 acting as warden and the other 3 as his assistants or alternates. The remaining 27 men were designated as compound personnel and were divided into 3 types: (1) turnkeys, who maintained the gate; (2) tower sentries, who manned the watchtowers; and (3) compound sentries, who maintained order within the compound. The hierarchic system was not only defined by rank and function but by physical sphere of activity as well. Thus, the officers and staff did their work largely in the office while the compound personnel had their posts at the gate, towers, or grounds of the compound, respectively. The turnkeys were the ranking enlisted men of the compound area, usually being junior noncommissioned officers. The prisoner population numbered 50 to 60 men.

Official communication was organized in typical chain of command or "line" fashion, that is, from the initiator to the next adjacent rank. Almost always a superior initiated the communication, and it was passed in orderly fashion along the line to successively lower ranks.

Communication was rarely initiated by inferiors to superiors and even more rarely was there any direct communication between nonadjacent ranks, such as a commissioned officer and a compound sentry.

The officers. The commanding officer of the brig, a colonel, had many other duties along with his command of the brig. He had no office in the brig and his contacts with the brig were limited to brief formal inspections. His junior, designated the brig officer, had the actual executive function of the brig and spent most of his working day in the brig office. The contacts of the commissioned officers with brig personnel were extremely formal. The brig officer conducted all business matters through the brig warden and had little direct contact with any other enlisted men. When a commissioned officer entered the compound, the entire area was called to attention and usually remained rigidly so until he had completed his business. The brig officer learned about the brig activities through a set of daily reports and, unless he inquired, his picture of brig functioning was apt to be a rather lifeless one. Much information did not reach him when situations could be handled comfortably by the staff. To avoid possible injustices, the device existed whereby any man in the brig—prisoner or personnel—might request a private meeting with the brig officer or submit an anonymous complaint. Generally, however, this system never achieved any great use or value among the lower echelons of the brig.

The staff. The 4 staff members may be regarded as "career men." All had considerable experience in the military penal institution and thoroughly understood its machinery. They were specialists in the execution of military penology. It was their assigned task to maintain over-all order of the brig as well as of the lower ranking enlisted men. The staff tended to regard the brig from the point of view of a conventional rule-book, which we may call the charter. In group discussions, staff members stated their mission in the brig very concretely, tended to minimize the brig's flaws, and attributed administrative problems to forces outside the brig such as inadequate funds, inadequate manpower, climatic and tactical factors.

Turnkeys. The turnkeys occupied a somewhat intermediate position both in rank and function. They were junior noncommissioned officers, no longer involved in the laborious tasks of handling prisoners, but not sufficiently beyond the compound gate to occupy office staff positions. They generally presented an attitude of acceptance toward the brig organization, although they did not take as orthodox a view as the staff. In group discussions their thoughts often turned to matters of control and status in the brig. A recurring topic was the subject of "problem" prisoners. The turnkeys felt that the sentries

were lax or cowardly in the handling of a surly prisoner. One prisoner in particular had roused their anger. This prisoner had maintained an apathetic, passively negativistic manner throughout his brig sentence; no measures or appeals could alter his uncooperative state. The turnkeys experienced intolerable feelings of impotence toward this man whom the brig could not break. Their feelings were somewhat assuaged by the thought that the brig manual severely limited their physical control over the prisoner. They often implied that some of the brig regulations concerning prisoner management were best ignored in dealing with such situations.

Sentries. The actual handling of prisoners was carried out by the sentries, who represented the lowest ranking, least experienced, and youngest of the brig personnel. Their behavior toward superiors was usually one of impersonal military discipline and courtesy. Their management of prisoners was often embellished by personal expressions of hostility. Although no case of physical maltreatment at this brig had been proven, direct observation and multiple parallel accounts left no doubt that many sentries were quite uninhibited in the performance of acts of hostility toward prisoners. An entire armamentarium of methods of humiliation, provocation, and abuse was used by some, often with the feeling that this approach was the practical solution sanctioned by the authorities.

Group discussions with the sentries proved to be quite spirited and expressive. They felt strongly antagonistic toward the staff, particularly toward the warden. The sentries felt that the staff was their adversary, spying on them, judging them, and harassing them. The sentries protested that they were treated like prisoners and frequently compared their lot to that of their captives.

The sentries' hostility toward prisoners was presented to the interviewer in a rather indirect fashion in obvious deference to the interviewer's status, nor was this hostility associated with the group pride that characterized staff-directed hostility. Many of the sentries explained their hostility toward the prisoners as resulting from their own oppression by the staff. They said that they passed on to the prisoners the anger they experienced from the staff's harassment. After a personnel inspection by the warden, for example, one sentry found himself particularly hard on the prisoners because he had "no one else to take it out on." Furthermore, the prisoners were aware that the warden harassed the sentries and some sentries argued that their consequent loss of face made the prisoners harder to manage and necessitated firmer measures.

The group discussions with the sentries produced a surprising number of admissions of hostile acts against prisoners. The incidents

were usually presented in a modified or disguised manner. Personal accounts by the sentries were often presented with some demonstration of guilt or mock guilt. At times the "confession" concerned a very minor act that served as a screen for a more serious offense. Although the sentries were somewhat uncomfortable about their hostile acts toward prisoners, there was strong group feeling that stern physical measures are a desirable approach to prisoner control. The restrictions the brig manual imposed on the sentries were unanimously opposed by the group. At times righteous indignation ran high and the sentry saw himself as the dispenser of personalized true justice. One sentry cited an instance of a senior noncommissioned officer (NCO) who, as a prisoner, was allowed special privileges. The sentry resented these considerations to the wrongdoer. In this respect, it was noted that known homosexual prisoners are often particularly oppressed in the brig, freely insulted, and segregated. Only one sentry in the group took a stand against abuse of prisoners. He had been assigned to the brig just a few days previously. Others, who might have entered the brig environment with similar feelings, had already surrendered them to group pressure. Sympathy was quite unpopular.

Retaliation by the prisoners was a preoccupation of some sentries. Incidents were recalled where ex-prisoners had met former captors outside of the brig and exacted personal redress.

The sentries readily expressed criticism of other personnel groups. In addition to their open resentment of the staff's despotic authority the sentries were generally dissatisfied with their relationships with other personnel groups. They complained that there were exclusive "factions" in the brig personnel and that there was too much distinction between NCO and private. They stated that there should be more unity among the personnel, that the word of a sentry concerning prisoner "incidents" should be unquestioned, and that more action should be taken on sentries' complaints. They felt it was useless to approach the brig officer because they would either be intercepted by the warden or their gripes would be neutralized by his subsequent comments to the brig officer. The sentries also criticized subgroups within the sentry group. The compound sentries felt that the tower sentries and turnkeys tried to exert too much control over the prisoners from their peripheral positions and that this intervention was unnecessary and domineering. The sentries who were permanent brig personnel distinguished themselves from the sentries who had volunteered from other units for limited brig tours to fill out the brig complement and who they believed were poorly motivated and did an inferior job.

In discussions with the sentries, the phenomenon of the group leader was regularly observed. The sentries were seen in groups of 5 or 6; and 1 or 2 usually functioned as the spokesmen for each group. These few were assertive and outspoken, often resorted to profanity, and were most open in their criticism of authority. They tended to set the themes of discussion for the group and used introductory key words or incidents to invite group participation on the target subject. These same men were also the most outspoken in their expressions of hostility toward prisoners and their wishes for physical punishment of prisoners. In the group interviews, the spokesmen were sometimes paired. They usually supported each other and passed mutual opinions back and forth across the group.

Although the focus of the observations is on brig personnel, it is obvious that personnel relationships did not function in a vacuum apart from the prisoners. Prisoner activities did affect personnel relations, and the usual stimulus was some form of prisoner misconduct. In terms of actual brig observations, the misconduct had a kind of periodicity. As it built up, the brig officer would become aware of a constant series of incidents with prisoners being put on report by the sentries. The prisoners would engage in smuggling and horseplay, feign illness or exhaustion, and fight among themselves. Various counteractions would be taken by the personnel.

In dealing with prisoner misconduct, mass punishment was often resorted to, that is, all the prisoners were punished for the fault of one recalcitrant or undetected prisoner. Prisoner cliques would be broken up by segregation or by rearrangement of sleeping quarters. With continued measures, prisoner misconduct would suddenly or gradually taper off, and average conditions would prevail until the next pitch built up.

INTERACTION PATTERNS

In attempting to formulate patterns of brig personnel behavior, it is of value to use varying frames of reference, approaching the situation in terms of both group and individual psychology. An effort has been made to delineate the approaches, but contaminations are inevitable.

From the standpoint of group relations, our chief interest is in the informal elements that have grown out of the military ingredients forming the brig. This informal structure or internal system, to use Homans' term,[7] appears to be an extension of the existing rank structure, in which each subgroup is socially isolated and suspicious of the

others. The enlisted personnel of the brig grouped themselves rigidly into 3 echelons based on their formal functions and ranks: the staff, the turnkeys, and the compound and tower sentries. These lines of division were evident during on-duty fraternization as well as during off-duty recreation. Changes in personnel did not affect the fundamental patterns, for incoming personnel achieved the set standards within a short period after their arrival. Nor did the youthfulness of many of the sentries give them any greater flexibility or mobility in their roles. All echelons will be discussed; but the main consideration will be given to the lowest level, the sentries, who constituted 17 of the 33 brig personnel and who fell heir to the most discontent and conflict.

Several features of the over-all brig group may be discerned. The first is the nature of communication or interaction.[7] Communication was almost always initiated from above, almost always had a negative or authoritarian quality, and almost never allowed for redress or interaction with its initiator. Other fairly generalized features were: the conflict between classes and with authority, hostility chain reactions, and rationalized substitute acting-out in a downward direction.

Beginning with the two officers, we see a picture of almost complete detachment. Orders are given, reports received, and unless something very unusual occurs the officers remain quite uninvolved with the human aspects of their personnel. Of any brig personnel, they most closely approximate their formal role. It is likely that they would have acted on information concerning undesirable brig practices but this knowledge seldom reached them.

The staff, while not uninvolved in the brig social relations, showed a similar picture of security and clear-cut aims. They exerted much authority over the men below them and rarely received an order from their superiors that was not passed on to men below them. They tended to be somewhat disdainful of the officers, secretly believing themselves to be the significant operating personnel, better off if unhindered by the officers' impractical and academic ideas.

The turnkeys are bypassed by much of the one-way communication of the brig. They have been promoted out of the sentry position to the gate and aspire to the next higher stage in the office. Thus concerned with status, they are critical of the sentries and concerned about the undominated prisoner. In terms of individual psychology, it may be said that the turnkey's preoccupation with the problem prisoner is a projection of his own feeling of lack of dominance within the personnel hierarchy.

The brig structure appears to weigh most heavily on the sentry. He is at the bottom of the one-way chain of orders. He is unable to

reciprocate with the initiator, receives little in the way of supportive or positive interaction from superiors, and is often left in doubt concerning his acceptance by superiors. The conscious hostility for the staff, aired in group discussions, appears to be a natural outgrowth of the frustrating situation. Even if the sentry wanted to demonstrate positive sentiment for his superiors, he has [illegible] access to them. Concurrent with the hostile sentiment toward the s[illegible] is the hostile activity toward the prisoners. Prisoner abuse may perhaps serve a "homeostatic" function for the beleaguered sentries, in terms of their group position. It serves to emphasize the sentry's position in the personnel ranks and provides him with a partial mastery of his environment.

Certain sentiments within the brig atmosphere facilitated the hostile behavior of sentries toward prisoners: (1) A moralistic attitude prevailed among the personnel that "the prisoners are here to learn a lesson." (2) The sentry group did not attach any stigma to acts of prisoner abuse. (3) The sentries thought that their insignificance in the personnel rank encouraged the prisoners to be insolent and made harsh measures a necessity. (4) The sentries thought that they were unsupported by their superiors in cases of prisoner misconduct and that they themselves had to settle the score with the prisoner at his own level.

DISCUSSION

The sadistic practices of the sentries upon the prisoners appear to be plausibly explained by the factors of group equilibrium and group sanctions. However, the process whereby the individual perceives an insult, responds with hostile feelings, and achieves satisfaction through a hapless third party has really not been adequately explained. The fractioning of the sentry's negative sentiment has been described in terms of group behavior but is not explained by the present observations.

A similar problem has been considered by Thorne,[8] who has charted the "epidemiology of hostility" through family studies. Thorne has pointed out the contagious quality of hostility, its tendency toward chain reactions, and its extreme potency when the recipient is in an inescapable position. The application of his thesis to institutions is apparent and appears borne out by the present observations of a penal institution. The sentries, our youngest siblings of the brig family, feel subject to inescapable frustration and hostility. The sentry is often young, inexperienced, lacks mature outlets, and is hard pressed to deal with his "chronic anger state."[9] Standards within

his peer group sanction downward acting-out, and he readily translates pressures from his superiors as well as neurotic hostility into aggression toward the prisoners. Of course, the cycle does not end there. Although severely restricted, the prisoners retaliate with negativism, accidents, sluggishness, and malingering. A further result, pointed out by Thorne,[9] is the build up of mutually suspicious and paranoid attitudes. Although not striking in the present study, marked paranoid attitudes on the part of prison personnel have been described in other studies.[4] Thorne's[8] epidemiologic framework is a useful approach to the subject. An interesting sidelight in the epidemiology of hostility is the practice of mass punishment in the brig. Implicit in this device is the wish that the group will become enraged and turn on the one, enforcing the discipline of the authority. Thus, mass punishment is the planned use of the retaliation motif to maintain control.

Another of the phenomena to be considered in the shaping of the sentry group sentiments and activities is that of the group leader. As noted, there were among the sentries certain individuals who were quite outspoken and who took the lead in criticism of the staff and discussions of prisoner abuse. This syndrome of assertive group behavior, hostility for prisoners, and hostility for authority may be viewed in various contexts: (1) The *individual*. The spokesman may be the more basically hostile and aggressive member of the personnel group and maintain this position in the relationships observed: toward the interview, toward the prisoner, and toward the superior. (2) The sentry *group*. Hostile impulses and acts have produced inner conflict and the individual seeks resolution of his discomfort through the available communication medium, the group meeting. The man who feels guilty or otherwise uneasy about his hostile acts may seek to express himself, to talk away his discomfort in receptive atmosphere. He seeks to gain group acceptance and line up group support for his own dubious standards. (3) The brig *culture*. The aggressive sentries have become the reflecters of the hostile retaliatory elements in the penal atmosphere. Hostile reactions to the staff and prisoners and his personal life fuse in his mind into a hopeless jumble of anger. Furthermore, anger and rage are more condoned as a masculine form of expression than are the more "feminine" feelings of sympathy or depression.

In considering intrapsychic or personality factors, one is faced with the immediate pitfall of generalizing from group observation to individual functioning. As a group, the sentries were characterized by authority conflict, a high level of hostility, and acting-out in substituted or available situations. Although it cannot be assumed that

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this corresponds to the personality of the average sentry, it is probable that these are features of many sentries that become aggravated in the brig setting. In terms of group personality, it is of interest to compare the orderly brig personnel organization with present-day delinquency culture. The conflict with authority, the reservoir of hostility, and the ready acting-out, all seen in the brig personnel interaction patterns, are quite discernible in modern delinquency patterns. The headline-making modern young delinquent is often marked by his viciousness, vandalism, and flouting of the law. Within this particular brig, 133 successive prisoners who were delinquents were evaluated psychiatrically. The majority of these showed features of chronic anger and authority conflict within the substrate of a character disorder. Are prisoner and sentry struggling with the same basic problems? The growing delinquency problem and trends of western culture suggest that authority conflict is a universal theme. Our present-day culture is marked by rejection of the elder, disdain for education, and cult of youth,[10] all pointing to the conflict with established order. The brig prisoner is the unsuccessful protestant, the sentry the successful one sensitized to despotic authority.

Sentries often gave evidence of their identification with prisoners in the group discussions, comparing themselves to prisoners in light of the staff's activities toward them. A frequent expression was that the sentry would end up a prisoner if goaded too far.

Guilty fear was evidenced by the sentry's preoccupation with prisoner retaliation. The sentry may be staving off his prison identification through his sadistic rejection of the prisoner. In a study of prison guards, Jacobson [4] has pointed out that the guard's reaction to this identification may serve to aggravate his severity toward the prisoners. In this same light it may be seen that criticism or rejection by superiors is quite threatening to the sentry because it tends to separate him from the personnel and push him more toward identification with the prisoners. Another factor to be considered in the sentry's developing sentiments is that of his proximity to the prisoners. The sentry is almost certain to have more human feeling for a prisoner whom he guards all day than an officer whom he salutes once a week. The sentry is thus in a position to acquire the attitudes of the prisoner directly and this may well contribute to their similarity.

SUMMARY AND CONCLUSIONS

Observations were made on 5 military penal institutions: 3 Marine Corps brigs, 1 Navy brig, and 1 Army stockade. The interaction patterns of the personnel of one of the Marine Corps brigs, repre-

sentative of the several institutions studied, are described. The 33 men in the brig formed a rigid hierarchy characterized by overt discipline and covert hostility. Hostile forces reinforced each other, and a reverberating cycle was maintained in the brig through all levels. Sadism engendered in brig personnel was similar to processes operating in many inmates. The potent atmosphere of the penal institution is antirehabilitative, prevents improvement by piecemeal measures, and might be the minimal focus of professional intervention.

Professional intervention in penal functioning has often had disappointing results. From the data presented it may be understood why piecemeal measures are unsuccessful in prisons. The tyranny of roles in the populace overrules most material changes. Usually little effort is made to change institutions on an attitudinal level. At this state of knowledge, when material needs of humane standards can generally be met, it seems reasonable to assume that the crucial area to attack is that of the attitudes of the milieu. Furthermore, the attitudes of the lowest level of functionary appear deserving of the most attention. In the penal institution here observed, if one is forced to choose between the psychiatric care and guidance of personnel and that of the prisoners, attention given to personnel would appear to be most rewarding in over-all rehabilitative effect on the prisoners.

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Principles of Nursing Care in the Management of Burns

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THE MANAGEMENT of patients with burns has undergone a marked change at the U.S. Army Surgical Research Unit during the past 7 years, resulting in the need for nursing personnel trained specifically for this particular task. Nurses should be well acquainted with the reasons for this special care and the problems involved in its administration.

The over-all plan for management of burns is influenced by two factors: (1) depth of the burn, and (2) extent of the burn as measured by the percent of involvement of the total body surface. The depth of the burn will help determine the requirement for whole blood in replacement therapy. It may also aid in a decision concerning exposure care or closed (dressing) care of the burned area, and will indicate future requirements of surgery and grafting. The extent of the burn is helpful in planning resuscitative therapy and in arriving at a prognosis.

An effective yet simple means of estimating the extent of a burn is to apply the "rule of nines." This rule, evolved by Pulaski and Tennison,[1] divides the body surface into areas of 9 percent or multiples of 9 percent. Percentages for the various areas are given in table 1.

During the first 48 hours after sustaining a serious burn, a patient will exhibit shock, as a result of changes in the distribution and content of fluids in the body and of losses and shifts of colloids and electrolytes. Such a patient must receive replacement therapy if he is to have the most favorable opportunity for survival. This period, therefore, may be designated as the period of resuscitation.

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EARLY DIAGNOSIS AND PROCEDURES

Many tasks must be performed by the medical officer or the nurse, or by a combination of the two, during the first 48 hours. The medical officer makes a quick estimate of both the degree of burn and the total percent of body surface involved. He is then able to determine the necessary therapy.[2]

Table 1. ***Rule of nines***

Region	Percent of body surface
Head and neck	9
Right arm	9
Left arm	9
Anterior surface of the trunk	18
Posterior surface of trunk and buttocks	18
Right leg and thigh	18
Left leg and thigh	18
Perineum and genitalia	1

The depth of the burn is commonly referred to as first, second, or third degree. Anyone well acquanted with the definitions and the objective signs of the various degrees of burn can determine the depth of injury with a fair degree of accuracy. In adults, extensive resuscitation and care are usually not required in cases of first-degree burns and those of second and third degree involving less than 15 to 20 percent of the total body surface. This is not always true, however, in electric or chemical burns, as these may cause extensive deep tissue damage but only slight surface manifestations.

A first-degree burn is the mildest of burns and involves only the epidermal layer of the skin (fig. 1). It is characterized clinically by redness and an objective and subjective feeling of heat, but there is no blistering or vesicle formation. Sunburn is the best example of such a burn. In the absence of complications, it will heal satisfactorily within 7 to 10 days without specific treatment.

A second-degree burn is deeper than a first-degree burn and also is called partial-thickness or dermal burn. The area is pink or a mottled red, and the injury usually is caused by hot liquids or a flash burn. It is characterized by blistering and weeping and is painful to a pinprick. Such a burn does not involve the full thickness of the skin; hence viable islands of epithelium remain in the dermal layer. When such a burn involves more than 20 percent of the body

surface, resuscitation and special care are required, but under ordinary circumstances, grafting is not.

A third-degree burn causes the most severe disturbance of body fluids and electrolytes. Such a burned area is pearly white or charred. It is dry and not painful to a pinprick because the injury is deep enough to destroy the nerve endings. A third-degree burn is called a full-thickness burn and usually results from contact with an open flame. It creates a problem in the loss of continuity of skin, requiring replacement by a skin graft.

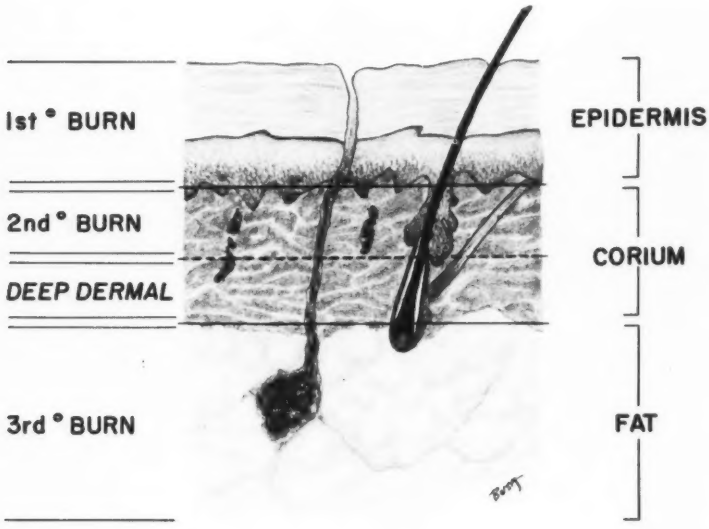

Figure 1. Diagram of the skin and subcutaneous tissue, illustrating the depth of injury in each degree of burn.

When a patient suffering burns is admitted to the hospital, a number of procedures must be carried out. These procedures, not all of which are applicable in every patient and which are not listed in the order of precedence, are (1) sedation, (2) administration of tetanus prophylaxis, (3) institution of prophylatic antibiotic therapy, (4) establishment and maintenance of a route of intravenous infusion, (5) initiation of resuscitative therapy, (6) insertion of an indwelling urinary catheter, (7) determination of the need for tracheotomy, (8) cleansing and débridement of the wound, and (9) decision as to the method of local care—exposure or dressing.

The physician decides on the procedure and the nurse is responsible for seeing that the necessary equipment and supplies are at the bedside of the patient. Routine supplies include an electric suction apparatus, oxygen apparatus with a nasal catheter, a tracheotomy tray, venesection tray, sterile polyethylene tubing, catheterization tray with Foley catheters, sterile tubing and bottles for collecting urine, a dressing cart with sterile dressings and instruments, tubes for blood samples for both chemical analyses and cross matching of blood, and tubes to take initial cultures for determining presence of bacteria on the burn wound.

If possible, a patient should be weighed before he is placed in a bed or on a Stryker or Foster frame. Sedation is given only on the order of the doctor. Usually it is given intravenously because of the uncertainty of the rate of absorption in severely burned patients when administered subcutaneously. Patients who previously have been actively immunized with tetanus toxoid receive an additional 0.5 ml of tetanus toxoid. Tetanus antitoxin is indicated in patients who have not had active toxoid immunization; and a minimum of 3,000 international units should be given. Many people have a sensitivity to this serum product; therefore, preliminary sensitivity testing is necessary.

Prophylactic antibiotic therapy is administered for the first 3 to 5 days. Penicillin and streptomycin sulfate are generally used, unless contraindicated by an idiosyncrasy, as these drugs are quite effective in controlling β-hemolytic streptococcal (group A) infections. Broad-spectrum antibiotics may be used, preferably those administered intramuscularly or intravenously. After the first 3 to 5 days, antibiotics are given only on the basis of wound culture and organism sensitivity tests.

NECESSITY FOR FLUID REPLACEMENT

A number of formulas have been devised to determine the types and amounts of fluids required in the resuscitation of burn patients. The water, colloids, and electrolytes that have been lost from the circulatory system by the development of edema or actual loss of fluids in the region of the burn wound must be replaced. Shock is associated with this profound loss and imbalance of body fluids and electrolytes.

The Brooke fluid formula is used at the Surgical Research Unit as a guide to proper resuscitation (fig. 2). This formula estimates the fluids required for the first 24 hours following thermal injury. From the 24th to the 48th hour, the amount of colloids and electrolytes given is about one half of the amount administered during the first

24 hours plus the full amount of a 5 percent dextrose and water solution (2,000 ml). This formula is only a guide, and modifications in the kinds and amounts of fluids to be given will be made by the medical officer when indicated by the clinical response of the patient.

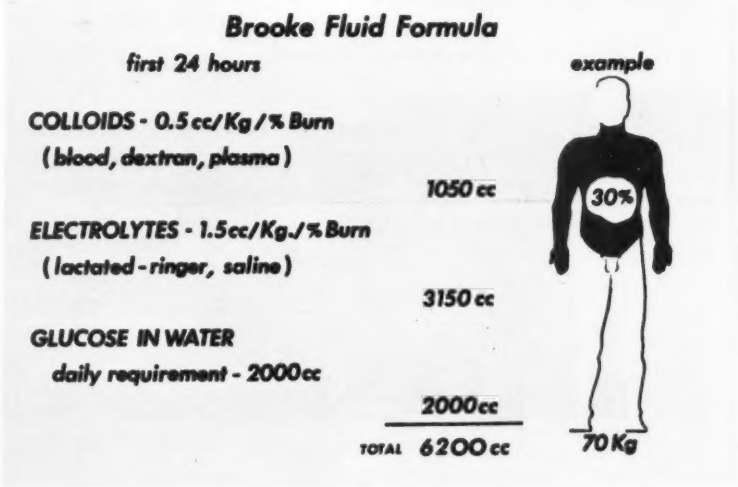

Figure 2. Application of the Brooke fluid formula for a patient weighing 70 kilograms (154 pounds) and sustaining a burn covering 30 percent of his total body surface.

The rate of administration of the required fluids is very important, and this is primarily the responsibility of the nurse (fig. 3). The fluids commonly used are blood, dextran, plasma, lactated Ringer's solution, isotonic saline, and 5 percent dextrose and water. Other medications that may be added to one of these solutions include antibiotics, vitamin preparations, and potassium chloride.

After the first 48 hours, the doctor usually orders fluids for a 24-hour period. The day nurse is responsible for mixing the solutions inasmuch as the orders generally are given in the early part of the day. She must know which of the antibiotics will mix in each intravenous solution, because a fluid must be discarded if it becomes cloudy or contains particles in suspension. After each solution is mixed, the nurse records on the label of the bottle the name of the patient, date, and contents. Usually the fluids are given in divided doses. The bottles are kept in the refrigerator until needed only if antibiotics have been added to the solution.

DETERMINING ADEQUATE RESUSCITATION

The adequacy of resuscitation is best indicated by the level of urinary output, because a patient sustaining burns of his arms and legs cannot have his blood pressure taken and other criteria for the diagnosis of shock may not be available. For these reasons, an indwelling catheter is inserted as soon as practicable. Urinary output is measured and recorded at hourly intervals. A patient whose output is maintained between 30 and 50 ml. per hour is being resuscitated satisfactorily. An output below or above this range is often an indication for a change in the rate of administration of fluids.

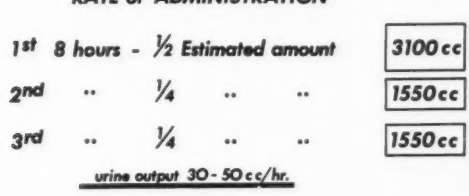
RATE of ADMINISTRATION
1st 8 hours - ½ Estimated amount
3100 cc
2nd .. ¼ .. ..
1550 cc
3rd .. ¼ .. ..
1550 cc
urine output 30 - 50 cc/hr.
2nd 24 hours
½ - ¾ of colloid and electrolyte of 1st 24 hours plus
water requirement.

Figure 3. The rate of administration of required fluids, showing the proportions to be given during each 8-hour portion of the first 24-hour period and the second 24-hour period. The amounts appearing in the boxes are based on the example patient in figure 2.

Because fluid replacement is extremely important in the early management of thermal injury, it is essential that members of the nursing staff know the signs and symptoms of fluid deficiency, such as thirst, vomiting, confusion, tachycardia, and a decreased output of urine. When some combination of these signs appears, the nurse must notify the doctor in order that necessary changes in the resuscitative regimen may be made.

If fluids are given too rapidly, pulmonary edema may occur. Fluid overload may be evidenced by a rise in blood pressure, excessive urinary output, rapid respiratory rate, a bounding pulse, or a decreasing cardiac rate.

Every nurse must be alert to the danger signs of either deficiency

or excess of fluids. She must keep the medical officer informed of significant variations in order to give the patient the best chance for recovery. Unless a nurse understands the physiologic changes that occur in the body of the patient, she is unable to follow the medical officer's instructions carefully and intelligently.

An intravenous lifeline is simply a means of getting blood and other fluids into the body. It is best to establish this route of infusion in one of the superficial veins by the use of a venous cutdown and polyethylene tube. If this procedure is precluded by occlusion or thrombosis of these vessels as a result of the thermal injury, it becomes necessary to secure this infusion route by inserting a femoral catheter. The medical officer does this by inserting a 14-gage needle through the skin into the femoral vein at the groin. A measured length of polyethylene tubing is then threaded through the needle to the level of the inferior vena cava. When the needle is removed, the polyethylene tubing is left in place. The end of the polyethylene tubing is attached to an 18-gage blunt needle. A small piece of tongue blade sufficiently long to overlap the junction of the tubing and the needle is taped to the blunt needle to prevent its cutting the tubing.

The dressing around a femoral catheter is changed as it becomes soiled. The nurse must be careful not to cut the polyethylene tubing while changing a dressing. A femoral catheter should not be kept in the same vein longer than 7 days because the incidence of thrombosis of the vessel rises rapidly after that time. If the tubing seems to be clogged, a nurse may irrigate it with 1 to 3 ml of sterile isotonic sodium chloride solution.[3]

The nurse keeps a record for each patient, usually on a 5- by 8-inch card, and on this notes the daily schedule of intravenous fluids to be given, after having calculated the time for giving each dose during the 24-hour period in order to distribute these fluids evenly over that interval. Such a record enables the nurse on each shift to change the bottles and give the proper solution at the designated time.

An indwelling catheter (Foley) is usually inserted if a patient has sustained a burn covering 20 percent or more of his total body surface. A catheter permits hourly measurement of the patient's urinary output without lifting him onto a bedpan. The Foley catheter is irrigated every 6 hours with a sterile isotonic sodium chloride solution to keep it free of sediment. A Y-shaped glass connector is attached to the catheter and to the rubber tubing from the solution bottle to facilitate this procedure. Every 6 hours 100 ml or more of solution is run into the catheter and allowed to drain into the drainage bottle containing the urine. An accurate recording of the amount of irrigating solution is necessary to determine the true urinary out-

put. Between irrigations, the tubing to the solution bottle is clamped. The solution and tubing remain hanging on an intravenous standard by the patient's bedside until the necessity for irrigation no longer exists.

Indwelling urinary catheters are changed once a week. This change may be quite painful. If urine is not draining from the catheter, the nurse should check to see whether any clots or purulent plugs are interfering with the flow. The medical officer is notified whenever irrigation fails to remove an obstruction.

TREATMENT OF SPECIFIC AREAS

A tracheotomy is usually required in patients with burns of the face and neck, direct burns of the upper respiratory tract, or burns occurring in a closed space with inhalation of noxious and irritating fumes and smoke. Within the first few hours after thermal injury of the face and neck, marked and severe edema occurs. Edema may prevent a patient from opening his lips. Vomiting frequently accompanies severe burns and, when a patient is unable to eject the vomitus, the best method of preventing aspiration is by a tracheotomy.

Inhaled flame or steam will cause edema of the entire tracheobronchial tree or of the larynx. A tracheotomy will bypass an obstruction in the larynx and help tracheobronchial toilette. In such instances, the tracheotomy is a lifesaving procedure. Following this procedure, a 4- by 4-inch, damp sponge must be kept over the tracheotomy opening at all times to help keep the air moist. The trachea is suctioned periodically through the tracheotomy tube to keep it free of secretions.

The inner cannula of the tracheotomy tube is removed and cleansed thoroughly at least once every 8 hours. The physician changes the tube and cannula every 3 days. Local care of the tracheotomy wound includes frequent cleansing with saline solution and the application of any dressing prescribed.

Even though a patient does not undergo a tracheotomy, he must be observed as carefully as one who does. Respiratory obstruction or pulmonary edema may occur at any time during the initial treatment period. A tracheotomy set should always be on the ward ready for use.

The electric suction machine used with tracheotomies is connected by means of a Y-shaped glass connector to a No. 12 plastic catheter. One arm of the Y is left open. The catheter is inserted into the depths of the trachea before suction is applied. Suction is obtained when the nurse holds her finger over the open arm of the Y-connector. The catheter is rotated gently while it is being removed. This minimizes

the damage to the mucous membrane of the trachea. Long, continuous suction must be avoided as this will suck out the air and result in an inadequate supply of oxygen. The catheter is kept in a bottle containing a 1 : 5000 solution of benzalkonium chloride between aspirations. A similar catheter is used if suction must be obtained through the nose.[4]

Oral hygiene in severely burned patients is a function of the nursing staff. It must be carried out frequently and effectively in order to prevent a stomatitis or associated infection of the oral structures. A suction machine is used to suck out the cleansing solution and to prevent the patient from strangling when he is unable to turn his head to allow fluid to run out of the side of his mouth.

Care of the eyes is particularly important when a patient sustains burns of the face. Sometimes he will not be able to open his eyes during the early period because of extensive edema. During the course of therapy, a patient who has had his eyelids burned may develop an ectropion or eversion of the eyelids resulting in exposure of the cornea.[5] The cornea must be kept moist and covered with a protective ointment to prevent ulceration and infection. Moistening is maintained by using a bulb syringe to irrigate the eyes with copious amounts of a saline solution every 4 to 6 hours. After each irrigation, an antibiotic ophthalmic ointment is applied. If a patient is scheduled for an operative procedure that necessitates a bandage over his eyes, he should be informed beforehand to prevent any psychologic reaction. When his eyes are bandaged, it is wise to explain any procedure prior to initiation of the treatment as this will help allay any apprehension.

Narcotics or sedatives are given for relief of pain and excitement during early postburn therapy. It is wise, however, to discontinue their use at the earliest possible time because a patient tends to rely on a narcotic as a means of escape from the realities of his injury. Frequently patients who have been severely burned (burns covering 30 percent or more of the total body surface) are disoriented and occasionally hyperactive. At such times, a mild sedative may be sufficient to produce calmness. These reactions are generally controlled by the use of a barbiturate given four or more times a day.

OPERATING ROOM PROCEDURES

A burn patient may undergo numerous operative procedures, with or without anesthesia, including débridement, dressing changes, and skin grafting. The initial operative procedure may be carried out shortly after a patient sustains a thermal injury. It may consist

only of washing the burned area with surgical soap that contains hexachlorophene and then rinsing with saline solution, or it may also include débriding the wound surfaces. At this time, the doctor must decide whether to use the exposure treatment or occlusive dressings on the burn. His decision will depend on a number of factors.

Second-degree burns are routinely treated by the exposure method. Most third-degree burns are also exposed because this method gives the best results while minimizing infection, cost of materials and supplies, and the amount of nursing care required.

If full-thickness burns involve the dorsum of the hand, occlusive dressings are generally used in order to maintain the hand in a position of function during the process of treatment. If the burned area is excised within the first 48 to 72 hours after injury and early skin grafting is to be undertaken, then the burn wound is dressed to prevent both the formation of the eschar and the entry of any bacteria.

Whenever dressings are used, they are changed on a 3-day schedule, both prior to and after skin grafting. When eschars are being removed in preparation for grafting procedures, saline dressings are used to hasten the cleansing of the burned area. Débridement of the burn wound is carried out at the time of each dressing change. It includes manual removal of the crusts and eschar and the mechanical débridement resulting from washing the area thoroughly with soap and a sterile saline solution.

Dressings used in the management of burn patients are massive, occlusive dressings that are made in advance to fit various areas of the body, such as a thigh, upper arm, an entire leg, or the lower portion of a leg. Such dressings also immobilize an extremity. Before applying these dressings, the region is covered by fine-mesh gauze that may be dry or impregnated lightly with petrolatum or an antibiotic ointment. Fluffs are placed on the areas as padding; and then the heavy occlusive dressings are applied. The dressing is held in place by wrapping it with stretchable, crinkled gauze bandage.[6]

Skin grafting provides coverage of a burned area and helps prevent the entry of bacteria that may cause septicemia. Grafting also serves as a functional and cosmetic coverage. The skin used is either autograft or homograft, or a combination of the two. Prior to the last decade, donor sites were covered with a layer of fine-mesh gauze impregnated with petrolatum or some other ointment, after which occlusive dressings were applied. Occasionally such treatment resulted in infection and the conversion of the donor area to full-thickness injury (comparable to third-degree involvement) and subsequent hypertrophic scar formation that was not only difficult to heal but unsightly.

In our unit, donor sites are treated routinely by the exposure method. The site is covered with a single layer of dry, fine-mesh gauze as soon as the skin is removed. Warm, wet pads are then placed over donor areas to control the bleeding. The pads are removed after the operative procedure is completed. The donor site is left open to the air, and it dries and forms a crust. The drying process is often accelerated by the use of a floor lamp having a flexible, adjustable arm and a 60- to 100-watt bulb, placed approximately 12 inches from the donor site. If the donor is still under anesthesia, a fan may be used, but this method is extremely painful when the donor is conscious.[3]

During the first 24 to 48 hours, when the crust is forming, the donor area generally is very painful, and a narcotic may be required at relatively frequent intervals. Donor areas are not painful after the dried crust forms. Since the donor has a tendency to chill, he must be protected from drafts. Hot-water bottles may be placed at his feet and blankets may be used for covering him, but it is imperative that the blankets and bed linen do not touch or cover the donor sites. This can be accomplished by using a bed cradle.

It is not difficult to keep an adult in a position that will expose a donor site. When large areas such as the chest or back are to be exposed, the donor may be placed on a Stryker frame and turned frequently to facilitate the drying process. It is difficult to keep children in a position for exposure; hence they must be restrained in some comfortable position in order to allow their donor sites to dry.

Every donor is cautioned against picking at the donor site. If the fine-mesh gauze is torn loose, infection may occur on the donor wound. As healing progresses, the fine-mesh gauze becomes loosened around the edges and it is trimmed off to prevent the patient from pulling at it. Usually the entire layer of gauze has been removed by the end of the thirteenth or fourteenth day and the donor site is healed.

ROUTINE THERAPY

Patients sustaining minor burns of only one surface of the body may be cared for in a hospital bed. If the burns are extensive or involve the trunk in combination with the perineal region and extremities, the patient is best cared for on a Stryker or Foster frame. Such a frame affords several advantages: 1. The patient is more comfortable. 2. He does not have to be lifted except for weighing. 3. The nursing care is less difficult. A patient can be handled very carefully by three or four members of the ward staff when on a

frame in spite of dressings on his trunk or heavy, bulky dressings on his arms or legs (fig. 4).

A special board was devised by our unit (fig. 5) because the regular arm board of the older model of the Stryker frame is not long enough and is not properly positioned. Arms and legs may be extended in any position, and are usually elevated. After the boards are in place, pillows are used to give comfortable support.

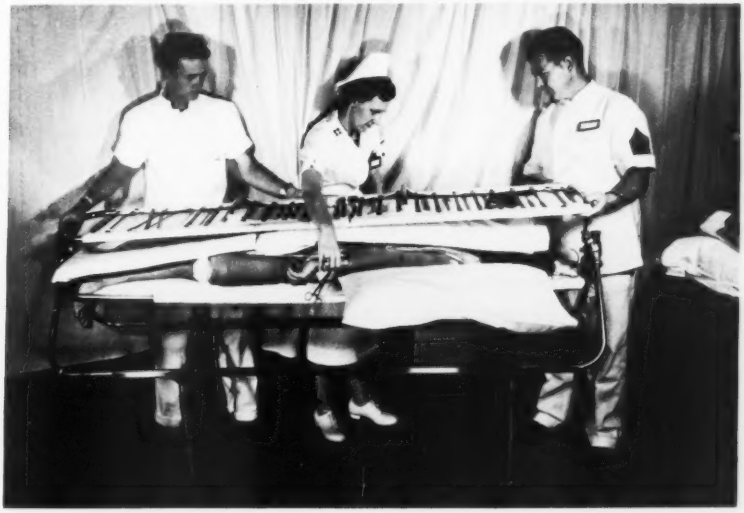

Figure 4. Ward personnel ready to turn a patient on a Stryker frame to a face-up position.

When a patient on a Stryker frame is turned on his abdomen, he must be observed closely to see if edema of the face occurs. Any indication of this requires immediate turning of the patient onto his back. During the initial period a patient may not tolerate the face-down position for the length of time desired, and the turning schedule must be adjusted. If a patient is able to use his hands and feed himself, he can do it quite satisfactorily while in a face-down position. If he must be fed by someone else, it is easier to feed him when he is lying on his back. The turning schedule, therefore, is planned to enable the patient to be in the face-up position at mealtimes.

The medical officer may order wet dressings for any one of several reasons: They accelerate the removal of the eschar in third-degree burns, they help to prepare a granulating surface for application of

a skin graft, and they aid in the control of infection on the surface of the burn. A soak or wet dressing, however, must be changed every 3 to 4 hours; otherwise it becomes a fertile surface for the growth of bacteria. Normal saline, Zonite (sodium hypochlorite) solution diluted to the desired strength, or sterile distilled water are some of the solutions that are used as soaks.

Figure 5. Special arm board attached to a Stryker frame provides movable support.

In applying wet dressings, the nurse prepares a sterile tray (fig. 6) that consists of a basin containing the solution prescribed, a bulb syringe, and dressings in sizes 4 by 4, 4 by 8, and 16 by 16 inches (the size selected is determined by the area of the burned surface to be covered). Sterile scissors and thumb forceps also are placed on the tray. The nurse wears a mask and sterile gloves when she applies or changes the dressings. The temperature of the solution may vary from 90° to 100°F, depending on the reaction of the patient when it is applied.

Before attempting to remove a dressing, the nurse wets it with the solution, using the bulb syringe, in order to soften any adherent substance and thereby decrease the discomfort to the patient. After the dressing is removed, the area is débrided, using forceps and scissors to remove crusts or necrotic tissue. If bleeding occurs, it can usually be controlled by applying Gelfoam. Should the bleeding persist, it may be necessary for the medical officer to use sutures.

Dressings are kept wet by applying the solution with a bulb syringe until time for the next dressing change.

The removal of dressings, débridement of the burn wound, and application of dressings are a time-consuming procedure. If the burned area involves just the trunk or one side of the body, a nurse can perform this procedure alone. If the area involves extensive wounds on the arms or legs, however, she will need an assistant to hold or move an extremity while she débrides the wound and applies fresh wet dressings. Some patients complain of discomfort and pain when wet dressings are first applied, and therefore elixir of phenobarbital frequently is given prior to the procedure. In more severe cases, the medical officer may prescribe a narcotic.

Figure 6. Application of wet dressings requires sterile technic. After dipping into the solution, a 4- by 8-inch dressing is applied directly to the burned area. When a 16- by 16-inch dressing is applied initially to a wound, difficulty in removing it may cause a patient unnecessary pain.

All burn patients complain of severe itching after their wounds begin to heal. This is often helped by antihistamine drugs, which are administered four to six times daily. An ointment containing cold cream, olive oil, and lanolin, made by our pharmacists, is applied to any area of the burn that has healed. This ointment minimizes

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scaling from healing areas, affords temporary relief from itching, softens these areas, and increases their pliability.

A patient who has sustained severe thermal trauma quickly burns up food stored in his body and depletes the protein in his tissues. It is essential, therefore, that he be given an ample, high-caloric, high-protein diet or formula. Frequently a patient does not wish to eat or will take only small amounts of food. In this case, he should be fed smaller amounts prepared in an appetizing way. If he will not eat voluntarily when his gastrointestinal tract is functioning properly, oral intake is maintained by the use of a nasogastric polyethylene tube. The liquid feeding given on our ward is either a formula or a homogenized, low-residue diet consisting of high-caloric, high-protein elements. Multivitamin capsules are routinely administered to patients who can take them orally. If a patient must be fed by tube, vitamin capsules are blended with the homogenized food.

PSYCHOLOGIC FACTORS

In the management of burn patients, it is best to separate each age group and sex. If it is not possible to have separate rooms or cubicles, movable screens may be used. In the case of children, however, such a substitute will not prevent one child from disturbing the other patients on the ward.

Every burn patient has his own problems, both physically and psychologically.[7] The nursing staff must always demonstrate patience, tact, tolerance, and understanding during this difficult readjustment. A patient, when first hospitalized, is unable to care for himself and becomes completely dependent upon others. Unless he is encouraged to help himself and perform such tasks as brushing his teeth and feeding himself, he will remain dependent upon others.

A physiotherapy department is an essential part of any center for the management of burn patients, and physiotherapy should be initiated at the earliest practical time. In our ward a patient begins simple exercises with the help of the physiotherapist, who comes every day. When a patient is able to be placed in a Hubbard tank or in a whirlpool apparatus, he is taken to the physiotherapy treatment room on a Stryker frame, a litter, or in a wheelchair. His ambulation usually is regulated by the physiotherapist under instructions from the medical officer in the physiotherapy department. When it is advisable for a patient to begin walking, his legs are wrapped in elastic bandages from ankle to thigh. He is not allowed to walk without these bandages, but they may be removed when he is lying in bed.

Teaching a patient to wrap his own legs and to care for himself will develop his self reliance.

Our hospital provides the services of an occupational therapist, who is on the ward daily. Various types of handicraft are furnished and the patient is assisted in making some article. The muscle coordination required in such therapy helps to restore maximum function to his fingers, wrists, and arms.

Personnel of the American Red Cross assist the patients and members of their family in any way possible. Rooms or apartments are provided for relatives; transportation is arranged when needed; and assistance is given in working out financial problems. They endeavor to make a patient's relatives comfortable during their visit. Other Red Cross activities include games and entertainment on the ward. Patients are taken to educational, recreational, and sports events on the post and in the city to help keep them interested. Indirectly these services contribute to the patient's peace of mind and sense of well-being.

SUMMARY

Initial therapy is determined by the degree and depth of the burn and by the percent of the total area of body surface involved. Early procedures include treatment for shock by replacement of fluid losses, and institution of prophylactic antibiotic therapy.

The Brooke formula serves as a guide to resuscitation. After the medical officer determines the types and amounts of resuscitative fluids necessary, the nurse is responsible for mixing the solutions and seeing that they are given in the proper proportion and at the designated intervals.

In order to supply blood and other fluids to a thermally injured patient, an intravenous lifeline must be established. In patients with extensive burns, this may necessitate the insertion of a femoral catheter.

Respiratory obstruction or irritation may occur during the early period following the injury. Tracheotomy is often a lifesaving procedure when a patient has sustained burns of the face, neck, or upper respiratory tract. Edema may be extensive when the face is burned; and special care of the eyes is mandatory. Narcotics are indicated for relief of pain and excitement.

Routine procedures for thermally injured patients include débridement, dressing changes, and skin grafting, with or without anesthesia. An occlusive dressing on burns of the hand helps to maintain a po-

sition of function. Occlusive dressings are changed on a 3-day schedule, both prior to and after skin grafting.

The exposure method of treatment of donor sites is preferred. A patient must be cautioned against picking at the fine-mesh gauze covering the area. The early formation of a crust prevents entry of bacteria that might convert a donor area into full-thickness skin injury. Healing of a donor site usually occurs by the end of the second week.

Patients sustaining extensive burns or burns involving the trunk in combination with an extremity are most easily cared for on a Stryker frame. Wet dressings are applied to accelerate the removal of the eschar in third-degree burns, to prepare a granulating surface for grafting, and to control infection on the surface of a burn wound. Because of depletion of protein stored in body tissues, supplemental food is required. When a patient will not eat a sufficient amount, a low-residue diet consisting of high-caloric, high-protein elements is homogenized in a food blender and given through a feeding tube. Vitamins may be blended in this food.

The difficult readjustment phase challenges a nurse's patience, tact, and understanding. A burn patient is unable to help himself at first; but he must be encouraged to perform simple tasks to regain his independence. Both physical and occupational therapy aid him in regaining motion of muscles and restoring them to maximum function. Personal and recreational services provided by the American Red Cross contribute greatly to a patient's welfare during the long period of hospitalization.

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Transferring a Prosthodontic Restoration Between Two Hanau Articulators

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MODEL H HANAU ARTICULATORS are not identical.[1,2] Occlusal disharmony is introduced when correctly mounted casts with occluding teeth are directly transferred from one Model H Hanau articulator to another by merely transferring the upper and lower mounting rings.[1,2] In prosthetic dentistry, the most commonly used method is to complete all clinical and laboratory phases of the restoration on one instrument, but this is not always possible, especially in the armed services, where transportation of the larger articulators between stations is sometimes difficult. In preference to the use of arbitrary articulator mountings on their instrument, the manufacturer has suggested a method of transferring a complete denture prosthesis from one Model H Hanau articulator to another.[2] An application of this method specifically for use in the armed services will be outlined. This procedure is recommended by the authors to encourage the use of face-bow registrations in conjunction with available semi-adjustable articulators.

The transfer method for use between two articulators begins with a face-bow registration and mounting of the upper cast. The use of the arbitrary center of rotation instead of the kinematic center of rotation is suggested because of simplicity of equipment, expedience, and accepted accuracy. Furthermore, in a study of 70 patients,[3] over 95 percent of the kinematic centers of rotation were found to lie within a 5-mm radius of the arbitrary centers of rotation. If any prosthodontic restoration having balanced occlusion on the articulator is to be equally balanced and functional when inserted in the mouth, it is

From Walter Reed Army Institute of Research and National Bureau of Standards, Washington, D.C.

essential that the factors and records guiding centric, lateral, and protrusive movements be oriented to the same opening axis. The few minutes required to obtain a face-bow record will enable the operator to more closely approximate on the articulator the anatomic location and/or relationship of the maxillas to the opening axis of the mandible. In this way the patient will derive the maximum benefit of the articulator of choice. Thus, the dentist will more closely achieve functional balanced articulation in the mouth. Omitting the face-bow registration entirely would decrease the precision of an otherwise systematic procedure when using a semiadjustable solid axis articulator.

The detailed description that follows will be limited to the fabrication of complete upper and lower dentures but may be readily applicable to other types of prosthodontic treatment. This method involves the use of two Model H Hanau articulators, one located at the dental clinic, the other at the central dental laboratory. It is recommended that the two articulators be identified and reserved for one patient but not necessarily left idle when unoccupied by these dentures.

TRANSFER TECHNIC FOR COMPLETE DENTURES

Dental clinic: The master casts have been poured in gypsum, and the occlusion rims formed and adjusted in the mouth for the correct vertical dimension of occlusion. Then by means of a face-bow registration and transfer, the upper cast is mounted on the clinic articulator. It is very important that the incisal guide pin be flush with the top of the articulator for this mounting. A centric interocclusal record is obtained from the patient. The lower cast is keyed,[4] lubricated, and then mounted on the clinic articulator. The centric interocclusal record is carefully kept intact for later use by the central dental laboratory.

The lower cast is separated from its keyed plaster mounting. This plaster lower mounting will be labeled and retained at the dental clinic to serve as a record of the original articulator mounting.

The first shipment is now made to the central dental laboratory and includes: (1) upper cast attached to its mounting ring and the upper occlusion rim, (2) the lower cast and occlusion rim, (3) the centric interocclusal record (which may be attached to either occlusion rim), and (4) specific instructions regarding shade, mold, and type of teeth to be used, together with necessary rim markings and special notations. In the event the centric interocclusal record is distorted in the mail, if the posterior teeth are not properly positioned, or if the laboratory should err in mounting the lower cast, the original lower mounting on the dental clinic articulator will immediately reveal the discrepancy.

Central dental laboratory: The upper cast on its mounting ring is secured to the central dental laboratory Model H Hanau articulator. The incisal guide pin is set flush with the upper arm of this articulator in order to minimize any errors in adjusting the condylar settings. Using the original centric interocclusal record received from the dental clinic, the lower cast is then mounted on the

laboratory articulator. The laboratory technician positions the anterior teeth according to the labial contour of the occlusion rims, and sets the posterior teeth into positive centric occlusion for try-in. The lower cast is then removed from its plaster mounting and returned to the dental clinic along with the upper ring and cast and the trial dentures. The plaster lower mounting and ring are identified and retained by the central dental laboratory.

Dental clinic: At the time of the appointment for try-in, the dentist at the clinic will follow either one of two avenues: clinic step A, or clinic step B.

Step A: If the original articulator mounting is correct and the esthetic arrangement of the anterior teeth is satisfactory, the dentist obtains a protrusive interocclusal record and adjusts the condylar elements on the articulator. The condylar settings obtained are recorded on the upper cast and also on the appropriate patient record for later use on the central dental laboratory articulator. Direct transfer of the condylar settings is suggested here because the differences that would occur from properly transferring the same condylar settings between the two articulators can be minimal and corrections made when the dentures are inserted. Large differences in condylar recordings from the same patient have been reported.[5] The trial dentures without the lower mounting ring are now returned to the laboratory with instructions relating to the fabrication of the completed dentures.

Step B: If the original articulator mounting is incorrect, the dentist obtains a new centric interocclusal record at the desired occluding vertical dimension. He then remounts the lower cast on the articulator, verifies the new mounting, and completes the esthetic arrangement of the anterior teeth. A protrusive interocclusal record is then accomplished and adjusted on the articulator. The condylar settings are recorded on the upper cast and on the appropriate patient record. A transferable centric interocclusal record (with lower posterior teeth removed) is then accomplished on the articulator for central dental laboratory use. The trial dentures, the upper cast and mounting, the lower cast, and the transferable interocclusal centric record are now returned to the central dental laboratory along with special notification of the new mounting.

Central dental laboratory: If clinic step B is followed, a new lower mounting is made in the laboratory, using the corrected centric interocclusal record. If clinic step A is followed, the central dental laboratory uses its original retained lower mounting to complete the dentures. Clinic steps A and B have been outlined so that in either event, the central dental laboratory can complete its fabrication of the dentures within the usual two round-trip mailings.

Using the prescribed protrusive readings, the necessary settings are made on the laboratory articulator, and the posterior teeth are arranged for balanced occlusion under close supervision of the central dental laboratory officer. The dentures are then waxed up, invested, processed, and polished. Corrections for occlusal processing errors are made on the central dental laboratory articulator before finishing and polishing.

The finished dentures are returned to the dental clinic with an index or single upper mounting which is made after correcting the processing error. This facilitates remounting the dentures at the time of insertion.

CONCLUSIONS

The technic as outlined is not intended to be a rigid one and allows for individual variations and occlusal adjustments commensurate with sound professional judgment.

The procedure does not require more laboratory or chair time than present technics now in use with either straight-line or semiadjustable articulators. Any dentist reasonably familiar with the Model H Hanau articulator can easily adopt this technic. Wider use of the face-bow registration is made easier by the described method, which utilizes the full advantage of the Hanau Model H articulator but requires only the usual two round-trip mailings (without either articulator). When it is not practicable to use one articulator, the authors believe that the outlined procedure has application within the Armed Forces dental services.

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THE ALLITERATIVE OBSTETRICIAN

I love my love with an O because it is Obstetrics—some people find it objectionable or even odious, which I consider odd. A distinguished editor who discussed the subject in my presence rather frivolously suggested it might be obscure, obscene, or even obsolete. Was he perhaps thinking of a "Brave New World"? I think, myself, he was obsessed with O.B. Surely for interest it is outstanding and overshadows all else in medicine.—A. M. Claye: The Occasional Obstetrician. *British Medical Journal*, August 1, 1959.

The Army Medical Service: Its Achievements, Objectives, and Plans

LIEUTENANT GENERAL LEONARD D. HEATON, MC, USA
SURGEON GENERAL OF THE ARMY

IT IS A GREAT HONOR and distinct privilege for me to initiate the Surgeon General's meetings for this year of 1960. Our plan is to present, at the 4 meetings scheduled this year, subjects of major concern and interest to members of each corps of the Army Medical Service. It is my hope that all members of the Army Medical Service in this area will avail themselves of the opportunity to attend these meetings and benefit thereby.

I have served in the Army Medical Service for over 33 years, mostly in a professional and executive capacity. It is inevitable that over this long period I should have formulated some definite concepts as to its major objectives and the road that we must take to achieve these objectives. Accordingly I propose to discuss items that are of interest to all of us, our progress to date and our plans, hopes and outlook for the future.

Because of our many duties and responsibilities, it is perhaps helpful to restate—in these opening remarks—the broad objectives of the Army Medical Service in order that our mission may be placed in a better perspective. Our objectives can be summarized as the 5 pillars of military medicine:

1. The practice of medicine, including the art of medicine as well as curative and preventive medicine
2. Field medicine—combat readiness
3. Medical education
4. Medical research
5. Medical administration

The mission of the Army Medical Service is to maintain the health of the Army so as to conserve its fighting strength, and to prepare, in

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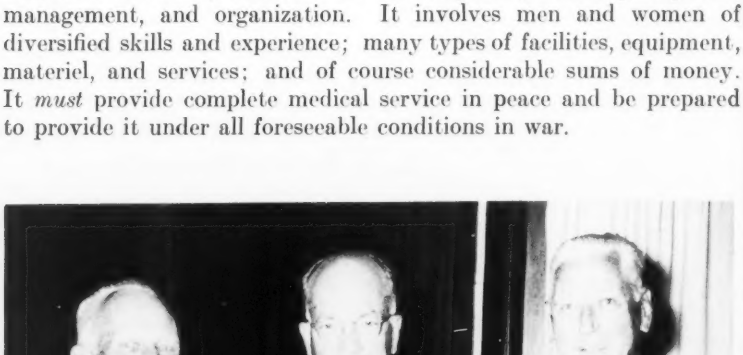
Text of an address to Army Medical Service officers, presented 15 October 1959 at Walter Reed Army Medical Center, Washington, D.C.

time of peace, for mobilization in time of war. This mission is clear and single in purpose, but the instruments and mechanics for accomplishing it are multiple and complex. The Army Medical Service is concerned with selection of the physically and mentally able soldier, prevention of disease and injury, evacuation and care of the sick and wounded, research and development, training, logistics, management, and organization. It involves men and women of diversified skills and experience; many types of facilities, equipment, materiel, and services; and of course considerable sums of money. It *must* provide complete medical service in peace and be prepared to provide it under all foreseeable conditions in war.



Lieutenant General Leonard D. Heaton with former Army Surgeon General Norman T. Kirk, left, and Major General Howard McC. Snyder, physician to the President, right, at the first of the 1959–1960 series of Surgeon General's meetings, held on 15 October at Walter Reed Army Medical Center.

No operation requires more attention to detail, places more reliance on team work, or demands a higher degree of perfection from every element of the organization and every facet of its operation than the Army Medical Service. Here we deal with the individual, both as soldier and human being, in an area of greatest concern to himself, his family, and the Nation—his health and perhaps his very life. It is one operation in which we shall never achieve our ultimate goal; for we cannot be satisfied with anything less than perfection.

The Army Medical Service is justly proud of its progress to date.

We are proud of the men who made great contributions to the art and science of medicine—Letterman, Tripler, Walter Reed, Brooke, and so many others who left us this great heritage. We are proud of our record in maintaining the health of the Army, the constantly shrinking noneffective rate. We are proud that patients in Army hospitals receive professional care equal to the best in civilian medicine. We are proud that the top graduates of our medical schools seek training in Army hospitals in greater numbers than we can accommodate. We are proud of our monkeys in space. True, there are some things of which we are not so proud, such as the dilapidated buildings we call hospitals, but more of this later Above all we are proud of the way the Army Medical Service has met and overcome the problems and obstacles placed in its path of progress. For all these achievements have been accomplished despite wars, hot and cold; despite constant turnover of personnel; and despite shrinking budgets.

In assuming the office of the surgeon general I am taking over a going concern that is doing an excellent job today and has the momentum for doing a better job tomorrow. I know that the problems we face in this infant nuclear age are growing in scope and intensity. I feel confident that, in line with the tradition of the Army Medical Service, we will square up to these problems and successfully resolve them. I consider it my duty to see that the progress of the Army Medical Service is not only continued but accelerated during my period in office Much can be accomplished even within a 4-year period if we understand our problems, have a definite realistic goal in sight, and together, as a team, are willing to work for it.

I said before that in the Army Medical Service we can never be satisfied with anything less than perfection. I am sure that all of us are devoted to the continuous improvement of the Army Medical Service. The question each must answer for himself is how best he can serve this end. The responsibilities of the surgeon general are numerous indeed, ranging from daily operational actions to the broadest of policy decisions; from signing routine correspondence to advising the Chief of Staff and the Secretary of the Army. However, there is one responsibility that looms above all others. The surgeon general must direct the course of the Army Medical Service for his 4-year period of office—the operating philosophy of the Army Medical Service, if you please. He and he alone is responsible for that.

Again, I want to repeat that progress of the Army Medical Service can be achieved only by simultaneous improvement in every facet of its operation. I have been a general surgeon and hospital commander long enough to know that no element of an operation is too

trivial to deserve proper attention. But, tonight I want to speak in broader terms and mention only a few of the problems upon which we must exert particular effort in the immediate future.

CARE OF PATIENTS

Our major task, in volume if not in importance, is to take care of the sick and injured. The most direct way to assure a good medical service in war is to build the best possible medical service in peace time. I believe the American officer, soldier, and members of their families deserve the best possible care that can be made available in both peace and war. First-class medical care is a matter not only of completely trained, well-motivated personnel, but of adequate, well-equipped facilities as well.

I am deeply concerned about the slow progress we have been making in the replacement of our antiquated medical facilities, which are inefficient to operate and not conducive to the best in medical care. I refer not only to the woodshed type cantonment hospitals but also to those of even more ancient vintage, such as Letterman and William Beaumont General Hospitals. We are operating a total of 52 hospitals in CONUS. Since World War II we have replaced 10; 4 are currently under construction, and 3 are funded and under design. Of the 35 remaining, 25 need to be replaced as a matter of urgency and necessity. My plan and hope are to provide the Army with a system of modern, permanent hospitals to raise the standard of medical facilities to be commensurate with that of the highest quality of medical care, and to keep pace with the new gymnasiums, permanent barracks, and over-all troop support construction program. I believe that the sick soldier requires and deserves at least as adequate and attractive an environment as the well soldier. I have initiated action through Headquarters, Department of the Army, to obtain an orderly replacement of hospital facilities over an 8-year period. Similarly, we need more rapid replacement of our Army area medical laboratories, medical research facilities, dental clinics, dispensaries, nurses' quarters (these tie in with nurse procurement, which needs stimulus), and enlisted men's barracks; and I intend to apply energetic effort to these elements of the construction program.

It is essential that the hospitals that are being built and that will be built in the future be equipped with the finest materiel that American ingenuity has devised. It is equally important that the worn-out and obsolete equipment of our other operating hospitals be replaced with modern efficient equipment that will permit the full

use of the capabilities of our excellently trained professional personnel, and will provide the proper basis for the maintenance of the highest standard of medical care in our hospitals. A recent survey of our CONUS Army hospitals revealed that we are lacking equipment of the advanced design and technologic improvement that is considered an integral part of modern patient care. The medical budget was so austere in the last few years that only about 4 percent of our direct budget money was available for replacement of worn-out and obsolete equipment, and for all maintenance as well. We have urgently requested that $4,000,000 be added to our obligational authority for this purpose. We have made plans already for a modernization program in our hospitals which will include replacing our worn and obsolete equipment with that of advanced design and acquiring recently perfected specialized equipment for diagnostic and therapeutic procedures. I deem it most essential that we keep pace with the new trends and technology.

On the other hand, I am quite pleased with the recognition our hospitals—both new and old—have received for the manner in which they are operated. The Joint Committee on Accreditation of Hospitals has surveyed and accredited 42 United States Army hospitals in the continental United States. We have a program also for the accreditation of our overseas hospitals. So far, 8 of these hospitals have been accredited. I should like to emphasize that of all the Army hospitals considered by the Joint Accreditation Committee—both overseas and in the United States—not one has been rejected.

Within the limitations of personnel and budget restrictions, the Army Medical Service must continually broaden the scope of its services as advances in medicine, surgery, and allied fields develop. For example, a few years ago cardiac catheterization and open heart surgery were unknown, and isotope laboratories were restricted to large research centers. Today, we have cardiac catheterization laboratories in 8 hospitals, and open heart surgery is being done at 4 of our major hospitals. Isotope clinics are actually operating or planned for all our teaching hospitals. Our major facilities have fully equipped pulmonary physiology laboratories, and even many of our smaller hospitals are able to perform pulmonary function tests, which only a few years ago were strictly research tools.

In the future, we plan to extend isotope clinics and pulmonary physiology testing to other treatment facilities as rapidly as feasible; and as trained clinicians become available we expect to have the capabilities of doing open cardiac surgery at most of our teaching hospitals in CONUS as well as in our overseas theaters.

In the field of psychiatry, the Army program continues to expand

preventive procedures designed to decrease instances of noneffective behavior. Mental hygiene consultation services have made a significant contribution toward reduction of prisoner personnel. Further intensification of these efforts that will involve an earlier recognition and identification of maladjustment problems will soon be implemented. Army psychiatry has also expanded its efforts in the care and treatment of psychiatric inpatients with special therapy wards.

Laboratory science has shared with other branches of medicine in the rapid developments of today. A common focal point, the laboratories serve all the specialties, whose increasing complexities have combined to affect laboratory medicine perhaps more extensively than any other specialty. The development of new tests has called for more complex instruments, increased training of personnel, and additional equipment and supplies, not even thought of a decade ago. Competent laboratory work must be done in adequate facilities with modern equipment, by well-trained technologists, in keeping with the advances in the science of medicine. It can no longer be relegated to inferior quarters or performed by any but the most capable physicians and allied scientists.

We must recognize our responsibilities to the vast number of outpatients who daily require such treatment at all of our Army Medical Service facilities. This type of medical care must be of the same high standard as that given to hospitalized patients. The Army has perhaps been slow to appreciate the advances in medicine that make it possible to treat an ever increasing percentage of patients by careful specialized outpatient or clinic care rather than by hospitalization.

Many of you know that a committee in my office is currently exploring all avenues of possible improvement in this area, to the end that our clinic patients will enjoy the equivalent superlative care now lavished on hospitalized patients, and will be afforded the same continuity of care and physician skill that is now possible in our leading civilian clinics.

I am presently endeavoring to secure additional funds so that our Army specialists in many fields can not only visit our own installations in this country and abroad, but can also explore the possibilities of reciprocal visits with our medical colleagues of many lands.

MEDICARE

We must be ever conscious of our responsibility not only to the American soldier but to his family as well. On 7 December of this year the Medicare program will complete its third year of operation. By that date the Government will have paid out more than $200,-

000,000 for 800,000 civilian hospital admissions of wives and children of men in the uniformed services. This money was almost equally divided between physicians and hospitals. In addition, on that date, it is estimated that there will be nearly 40,000 cases for which bills will not yet have been submitted.

Of the 800,000 civilian hospital cases for which the Government will pay in these 3 years, about 410,000 are deliveries, 70,000 are other obstetric cases, 170,000 are surgical and 150,000 are medical cases. But these figures do not cover the whole Medicare program. During the same 3 years, it is expected that military service facilities will have treated more than 1,100,000 hospitalized dependents, including approximately 350,000 maternity cases.

Working together, service and civilian hospitals will have cared for nearly 2,000,000 hospitalized cases—more than one case a minute—since the Medicare program for dependents was authorized 3 years ago by the enactment of P.L. 569. Babies born under the program total nearly three fourths of a million—one every 2 minutes—about 6.2 percent of the annual total of births in the United States.

To achieve optimum utilization of service hospitals, and to effect economies, on 1 October of last year the scope of the program was limited. Continuing study by the office for Dependents Medical Care has shown that the range of care available under the program can probably be restored to approximately that which existed prior to 1 October, without exceeding available funds. The permit system will remain in force to assure that our service hospitals will continue to operate at their optimum level. Accordingly, at the direction of Dr. Frank B. Berry, Assistant Secretary of Defense (Health and Medical), the uniformed services are now engaged in coordinating procedures designed to effect this restoration. It is probable that a final decision on the matter will be forthcoming in the near future.

PREVENTIVE MEDICINE

I said before that patient care is our major task but not necessarily our most important task in peace and war. Who can say which link of the chain is most vital? Certainly preventive medicine ranks high in importance in maintaining the strength of the Army.

Major problems today in military preventive medicine are the continuing difficulties in recruiting and training of preventive medicine officers; the increasing hazards arising from the rapidly expanding military use of radioactive materials, microwaves, other radiation devices, and missiles; and the adequate training of individuals in small groups in field sanitation and hygiene. The latter problem has been

emphasized by the excessive hospital admission rates for diarrheal disease in United States forces in the 1958 Lebanon operation.

During the past year, however, we have made some important advances in the field of military preventive medicine. Vaccination against poliomyelitis of all Army personnel under the age of 40 years was made mandatory and a decision was reached to vaccinate all recruits henceforth against adenovirus disease, beginning this fall. Dried smallpox vaccine will be standardized, and it is anticipated that the use of this material will largely obviate our past problems of storing and shipping this delicate material, which has been so thermolabile in its usual liquid form. Recent developments in the field of medical entomology have produced a highly effective insect repellant (diethyltoluamide) for application to the skin; this item is now being standardized. It is rather disturbing that many insects of medical importance are rapidly developing worldwide resistance to standard insecticides. Thus, new and potent insecticides are constantly being sought.

In the future practice of military preventive medicine, the problem of how the Army Medical Service may best help to evaluate and reduce radiation hazards to our troops from military and nonmilitary sources will become of increasing importance. An intensive survey is now under way to determine our capabilities in this field and to establish a base line for further expansion of these capabilities. Still another task is to develop more current and accurate technics for reporting disease and better means of disseminating our burgeoning knowledge about infectious disease. Training our medical officers in the exotic but classic communicable diseases of military importance, such as cholera, typhus, plague, and smallpox, poses a peculiarly knotty problem, and we believe that we must send our best officers for training to those parts of the world in which these diseases exist.

The growing realization of the enormous medical and public health problems that will be shared by the civilian and military populace following major disaster, such as nuclear attack, is a cause for grave concern. Guidelines for the Army's specific role in civil defense have been prescribed and we will continue to explore how the Army Medical Service can best cooperate with and assist the civil defense and civil affairs authorities in helping to relieve an afflicted population.

PERSONNEL AND TRAINING

The Army Medical Service, as you well know, comprises several component corps, and in addition, has assigned enlisted men and women. Together these corps constitute the lifeblood of the Service. I am deeply conscious of the team concept in medicine. I favor the

highest integration of medical disciplines concerned with the health of troops.

Perhaps in no other area has the Army Medical Service showed greater improvement in recent years than in the quality, albeit not the quantity, of its personnel. Following their internships, more and more of our doctors are being trained in the various specialties. We now have almost 600 board-certified Army medical officers on duty, and we currently have over 650 doctors in specialty training. Fourteen of our hospitals are approved for training various specialists and interns. Our nurses are becoming more skilled through service courses and higher education at civilian institutions. Many of our allied scientists of the Medical Service Corps are improving their stature and value to the Army Medical Service through graduate training. Our administrators of the Medical Service Corps are becoming more skilled in modern methods of hospital administration through their attendance at seminars and courses in hospital administration. Our enlisted men and women are becoming even more proficient through training and practice—and they comprise by no means the least part of the medical team, whether in or out of a hospital. Whenever I say "medical team" I include not only those I have already mentioned, but also our fine dental officers, veterinary officers, members of the Army Medical Specialists Corps, and our faithful and devoted civilians. The proficiency of all of our men and women in the care of the sick deeply impressed the current president of the American College of Surgeons, Dr. Owen Wangensteen, during his recent tour of our installations in Europe. He said, "There is a very obvious attitude of interest in the work and a keen awareness of their sense of responsibility, such as one is always privileged to observe amongst a group of superior medical men."

Medicine is dynamic, never static. Proud as we are of our past accomplishments and present abilities, we must plan for continuous improvement. I am certain that the training of our young officers can be improved even further, and I propose to exploit to the fullest the vast pool of clinical material and the ever increasing numbers of our certified staff men in many of our larger post hospitals to augment our residency training programs. We are utilizing certain of these station hospitals not for additional residency spaces, but in strict affiliation with our present adjacent teaching hospitals. This, I believe, will not only raise our training standards even higher than at present, but more important, will stimulate such interest and present such challenges to all that the care of patients in these post hospitals will be vastly improved. Concurrently with this, I believe our research efforts can be expanded and more closely integrated to the

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clinical work in adjacent hospitals, to the mutual benefit of patients, clinicians, and our research workers. We must take the same giant steps in further improving the training and working conditions of the other members of the medical team.

Training is not the only solution to our personnel problems. We must continually improve the attractiveness of the Army Medical Service so as to increase procurement and retention of officers in all of our Corps. I believe that some of the things I have discussed already, such as improved facilities, improved training, improved team work, and improved living conditions, will contribute to this end, but other means must also be found. We are working on a number of projects in this area but have not yet reached the stage where we can report specific programs.

FIELD MEDICINE

Combat readiness is the primary mission of the Army. The capability of rendering adequate support to the Army in the field is our continuing responsibility. As you know, the concepts of war have undergone and are still undergoing more radical changes in recent years than at any time since the invention of gunpowder. In future conflicts technics will be based on the theoretic use of nuclear weapons, whether they are utilized or not. There will be vast increases in range and—more important from our standpoint—lethality of all weapons, nuclear or conventional. Possible use of nuclear weapons will increase the need for tactical and strategic mobility. If high-yield nuclear weapons are used, we will have mass casualties on a scale never before dealt with and never before occurring in such a short time or over such a wide area. Our job then will be to support troops in a combat zone vastly extended in both width and depth. The tactical dispositions and movement will be highly fluid, capable of rapid concentration of widely dispersed units for violent attack, and followed by equally rapid dispersion and deep exploitation. Our units will probably be smaller; complete mobility and means of continual communication for rapid control will be most essential. Austerity of supply will be, of necessity, on a scale heretofore not experienced, and air evacuation of our casualties the favored method.

It is true that the pathology induced by chemical-nuclear weapons, toxic chemicals, and intentionally induced diseases, with the possible exception of radiation sickness, is no different from the pathology with which we have had to deal in the past. The prevention and treatment of infectious diseases, thermal and mechanical trauma, and chemical poisoning indeed are not new to us. However, the situation in which we deal with disabilities produced by these weapons, as I mentioned

previously, may be vastly different from that in previous conflicts.

Strengthening and improving the capability of the Army Medical Service to provide the highest standard of medical care in peace time will strengthen our capability to provide medical troop support during war, both in garrison and in the field. But that alone is not enough. We must develop new doctrine, new technics, and new equipment and improve organization and operation for the support of the Army in the field. In this area we have not progressed as rapidly as we would have liked. General Hays recognized this problem. Shortly before I took over he established a Combat Development Command to coordinate the execution, review, and analysis of our combat development program with that of the Department of the Army, Headquarters, Continental Army Command, and other agencies, as appropriate. This group should contribute substantially to the improvement of medical combat support effectiveness. The new idea for our present combat development group, in consonance with that of the Army, is to develop the concept for the future—to provide guidance for the development, through research, of materiel essential to the support of the concept—rather than to accept the best items available.

As important as it is to be prepared to fight the war of the distant future, it is equally important to be prepared to incorporate doctrine, organization, and materiel into our current capability of meeting emergencies that may arise in the more immediate future. In this connection we are conducting a program for the reconstitution of field hospital assemblies. We are not only replacing outdated and outmoded items but are using modern packaging technics to provide for improved portability, mobility, air transportability, and versatility better to support the current pentomic concept.

Most of you are acquainted with the Medical Materiel Program for Nuclear Casualties. This is a program developed in cooperation with the Office of the Secretary of Defense and our sister services to preposition emergency medical treatment units with troops for use in case of nuclear attack. This program is divided into three phases: Phase I is designed to meet the needs for self (buddy) or nonprofessional aid when the workload far exceeds local medical professional capabilities and when utilization of nonskilled personnel for emergency care is mandatory. Phase II is intended for professionally directed survival care under the supervision of medical officers. Phase III provides full definitive treatment administered by professional and ancillary medical personnel under professional supervision. Phases I and II are well under way, with some of the units already in place. We are now instituting a program for the training of personnel in the use of these units.

The Korean War proved the value of using helicopters for the evacuation of the sick and wounded. We have 12 helicopter ambulance detachments now. Within the next fiscal year, this type of unit will be replaced by air ambulance companies, which will have 24 helicopters each, as opposed to 6 helicopters in our present detachments.

In planning for emergencies, my staff and I will continue to place emphasis on the preparation, development, and constant improvement of plans designed to insure the best possible medical support for each combat element in the event of mobilization. In this connection we must continue also to carry on a program of close surveillance of the training and preparedness, especially of our Table of Organization and Equipment, medical, Strategic Army Corps and Strategic Army Force units. I deem this program particularly important.

RESEARCH AND DEVELOPMENT

Medical research must not only continue to contribute to the improvement of the Army Medical Service during peace time, but must produce the answers to numerous problems upon whose solution may depend our ability to win future wars and perhaps even to survive. Although the responsibility for research in defense against chemical, biologic, and radiologic (including thermonuclear) warfare belongs to the Army Chemical Corps, the fact that these weapons systems act through alteration of physiologic functions means that we, in the Medical Service, must contribute our knowledge and skill toward developing measures that will protect military personnel against these weapons. This requires active and vigorous research aimed at discovering measures to increase man's resistance to radiation, protect him against the incapacitating and lethal effects of toxic chemicals, and increase his resistance against infectious diseases, many of which might be unfamiliar to Medical Service personnel. Where preventive measures fail and large numbers of casualties are produced within short periods of time, we must develop better therapeutic technics applicable on a large scale to save lives and return men to duty in minimal time.

In many of the areas where military operations might take place, the disease hazards are still unknown. United States personnel entering some of these areas would be immunologic virgins and readily susceptible to new diseases. We had such an experience with hemorrhagic fever in Korea in 1951. If we are to be prepared to support the United States Army adequately in operations, it is mandatory that we acquire data on health problems in many areas of the world

and improve our knowledge of the agents, reservoirs, and vectors of communicable disease.

We are partially covering this requirement by maintaining the 406th Medical General Laboratory in Japan; by sending research teams to many far-off places at the request of local governments to assist in the control of epidemic disease; and by assigning medical service personnel to collaborate with native scientists in their own laboratories. We now have a medical parasitologist in a medical research laboratory in the Belgian Congo, and are in the process of assigning a medical officer, who is a microbiologist, to the Thai Army Institute of Pathology. These activities not only meet a medical military requirement of ours, but assist other nations in their struggle to improve their health services and conquer disease. I believe such assistance is of great value in cementing the friendship between our country and other nations of the world.

In a broader sense, I hope to expand the contributions of the Army Medical Service to the betterment of world health, which, I believe, is to be a major factor in the furtherance of world peace. I believe the Army Medical Service can make a major contribution to this end, working not only through the established media of military assistance advisory groups, but also working reciprocally with all nations. You are doubtless aware that many of our experts in medicine and surgery have already been invited to speak and teach in many countries, particularly in Taiwan, Japan, and Korea, and in Southeast Asian areas. It is hoped that such teaching missions may continue to be sent to these and other countries; and that we, in turn, can meet with and learn from scientific leaders of other nations who could visit us here.

I have said that anything that improves our peacetime medical capability improves our combat medical capability. The reverse is also true. Our research and development program, while primarily designed to strengthen our combat capability, has contributed and is contributing to the quality of our medical practice in the Army and to the practice of medicine throughout the nation.

During the past 2 years, from our research program have come better methods for the early diagnosis of infectious disease, improved technics in use of the artificial kidney, and the first really effective method of artificial respiration, namely, the mouth-to-mouth method.

Research is a fundamental responsibility of members of any health service. The Army Medical Service is no exception. We are proud of the contributions of those who have preceded us and we must continue to make similar contributions, to insure that we will never fail the Army in time of need, to make our share of contributions to the

advancement of medical science, and to maintain our reputation for the highest quality of patient care.

CONCLUSIONS

This, of course, is but a thumbnail sketch of our progress to date and our plans, hopes, and outlook for the future. A plan for the future must be flexible and under continuous review. It must be adjusted with the appearance of each new problem and the solution of an old one. It must take advantage of every opportunity and be ready to overcome all obstacles. Above all it must be receptive to new and better ideas. I express my hope that you will let me share your thoughts on how best we can together accomplish the mission of the Army Medical Service. I welcome the constructive criticism and assistance of each of you and all members of the Army Medical Service. I have long been a great believer in the following observation made by Doctor Karl T. Compton, of the Massachusetts Institute of Technology: "I believe that experience, logic and human psychology all support the view that the type of government (command) most likely to be successful in the long run is the one that directs and inspires but does not too rigidly control; which offers large opportunity for initiative and criticism; which has faith in the mass judgment of an intelligent group and in the genius which may appear in unexpected quarters." Our pride in the Army Medical Service reflects achievements to date; our task is to assure a better service tomorrow. May the verdict of history be kind to all of us.

WORDS OF A COUNTRY DOCTOR

To the young man contemplating the study of medicine, I would like to warn him that he must have, above all else, a vocation, and must not just enter medicine as a method of making a living. The country doctor has certainly been the best example of true love for his profession. His motivation was a desire to benefit his fellow men. Also, I would suggest to the new generation of doctors, with their greater modern knowledge, that the acquiring of a little flavoring of the old methods would do much to endear them to their patients. These words may be altruistic, but they come from the heart.—LEVIN J. SOTHORON: A Look Backward. *Maryland State Medical Journal*, June 1959.

Case Reports

Endometriosis of an Episiotomy Scar

CAPTAIN R. RICHARD MURRAY, USAF, MC

SINCE 1921 when Sampson [1] began focusing the gynecologist's eyes upon the histogenesis of endometriosis, case reports have been plentiful in the medical literature. One of the less common sites for external endometriosis is a perineal scar secondary to parturition. In a review of the literature in 1951, Catherwood and Cohen [2] found 13 reported cases of endometriosis of perineal scars, and recorded the 14th case. In each of the next 3 years, one more such case was reported.[3-5] From 1955 to 1958, 9 new cases were recorded in the English literature,[6-8] including a series of 4 cases by Henriksen [8] and 3 cases mentioned briefly in conferences and lectures.[6] Of the 26 reported cases of endometriosis in an episiotomy scar reviewed, 3 cases [2, 6] were associated with a pregnancy and had typical decidual reaction, 4 cases [7] had a recurrence of aberrant endometrial tissue following surgical excision, and only 1 case was associated with definite evidence of endometriosis elsewhere in the pelvis.

An additional case of endometriosis in an episiotomy scar follows.

CASE REPORT

The patient was a 23-year-old married white woman, para 2, gravida 2, abortus 0. Menses began at age 13, maintained a 28-day cycle and lasted 5 to 6 days. The patient had an uncomplicated pregnancy terminating in a normal spontaneous delivery in July 1956 over a right mediolateral episiotomy. Her second delivery was in July 1957, again over a right mediolateral episiotomy. A "slight" increase in intra- and post-partum bleeding occurred during this delivery, but it was not severe enough to warrant transfusion or other supportive therapy. Healing was prompt and adequate after each episiotomy. The patient had no further symptoms or difficulty until about 9 months post partum, at which time, during her menstrual period, she noted a slight swelling to the right of the anus. This swelling recurred and increased in size with

From U.S. Air Force Hospital, APO 323, San Francisco, Calif. Dr. Murray is now at the Brooklyn Methodist Hospital, Brooklyn, N.Y.

each menstrual period and became associated with a "burning sensation." Two months after the swelling appeared she began to note a small amount of bleeding from this area 2 to 3 days prior to the onset of her vaginal bleeding. With the cessation of the menstrual flow, all symptoms except the constant localized swelling would subside.

Figure 1. Photograph showing the nodular lesion in the scar of a previous right mediolateral episiotomy.

The patient denies other gastrointestinal, genitourinary, or gynecologic complaints, and her past surgical history revealed only the two obstetric deliveries.

Figure 2. Photomicrograph of a section of perineal lesion, showing epithelium, endometrial glands, and an endometrial type stroma. (x 15)

Fourteen months after her last pregnancy, the patient was examined while under general anesthesia. The vagina, uterus, and adnexae were normal. In a right mediolateral episiotomy scar a slightly raised, bluish, lobulated, firm cystic mass, about 10 or 12 mm in diameter, was noted (fig. 1). This mass was removed in toto via an elliptical excisional biopsy and the resulting tissue defect closed with catgut.

The pathologist's report was as follows: "Epithelium is seen with occasional hair shafts as well as sebaceous and sudoriferous glands. In many areas, including some almost immediately adjacent to the epidermis, there are distinct endometrial glands surrounded by endometrial type stroma (fig. 2). Diagnosis: Episiotomy scar: Endometriosis."

The patient had a relatively uneventful postoperative course but returned to the clinic 1 week after discharge from the hospital because of a slight infection in the wound area. The area healed rapidly with local antibiotic and heat therapy, and the patient had no residual difficulty.

Examination 6 weeks after the operation revealed no recurrence, but because of an unexpected change of duty station further follow-up of this case was not possible.

DISCUSSION

Endometriosis of an episiotomy scar is an isolated example of a broad and interesting disease entity, the histogenesis of which is a favorite topic for discussion. The current theories for this histogenesis, singly or in combination, fail to explain all cases of this disease. Recently, economic status and the modern pace of living[9] have been suggested as predisposing etiologic factors, with the implication of a future increased incidence of the disease.

Endometriosis in an episiotomy scar is most easily explained on the basis of implantation of endometrial fragments sloughed off at the time of delivery. It has been shown both that endometrial tissue transplanted to other parts of the body will grow [10, 11] and that there are viable endometrial fragments passed at the time of menstruation.[10, 12] Considering the high percentage of episiotomies performed during vaginal deliveries, thus affording excellent opportunity for transplantation and growth of endometrial tissue fragments, it is difficult to explain why the incidence of such cases is so rare. Nora, Meyer, and Carborera [13] found a significantly lower incidence of endometriosis in abdominal scars following cesarean sections than in scars resulting from other uterine surgery. Thus the presence of a pregnancy seems to be an inhibitive factor in endometrial tissue implantation. Several possible explanations of this inhibition may be mentioned. Kimball and Reeves [14] suggested some difference in growth potential of the endometrium in the pregnant and nonpregnant uterus. There is always the question of hormone influence,

which either renders the implantation site unsatisfactory for growth of endometrial tissue or which makes the endometrial fragments nonviable. The endometrial fragments which are presumably sloughed at the time of delivery may not be viable simply because of the increased pressure exerted upon the endometrium by the fetus, membranes, and amniotic fluid. The amniotic fluid may be the inhibitive factor. Any endometrial fragments present during a delivery may be washed away by the fluid, or the amniotic fluid may have some toxic factor preventing the implantation or growth of the tissue.

SUMMARY

Twenty-six cases of endometriosis of an episiotomy scar have been reported previously in the English literature, and an additional case is presented. Although the histogenesis of endometriosis is not known, cases of this disease occurring in an episiotomy scar may be easily explained by transplantation of endometrial fragments sloughed at the time of delivery. The low incidence of such cases, however, raises many questions. This article poses several possible explanations for the low incidence of endometriosis occurring in an episiotomy scar.

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Stevens-Johnson Syndrome Following Sulfamethoxypyridazine (Kynex), Treated Successfully with Triamcinolone

HOWARD S. YAFFEE, M.D.

RECENTLY there has been much interest in the infectious etiology of the syndrome first described by Stevens and Johnson,[1] consisting of erythema multiforme with fever and mucosal lesions. Advances in microbiology indicate that many hitherto unexplained disorders are associated with viruses and of late the role of herpes simplex in the Stevens-Johnson syndrome has received renewed attention.[2] In all probability, this symptom complex, like many others in clinical medicine, is a tissue reaction which may be evoked by a number of agents. The commonest and perhaps best understood of these are drugs. Reports of the Stevens-Johnson syndrome attributed to sulfonamides, to penicillin (both of which are also mentioned in earlier reports as having therapeutic efficacy in this disorder), to salicylates, tridione, and phenobarbital may be found in the literature.[3] Recently the syndrome has been described following chlorpropamide therapy,[4] and the author has also seen a case. In the following case, the syndrome is believed to have been caused by a newer sulfonamide, sulfamethoxypyridazine (Kynex).

From Beth Israel Hospital, Boston, Mass.

CASE REPORT

A 46-year-old white woman was admitted to the neurosurgical service of this hospital with progressive weakness of her right arm and leg. Physical examination disclosed a blood pressure of 170/80 mm Hg, pulse rate 60 per minute, and respirations 20 per minute. Right hemiparesis was present. There were signs of early hypertensive cardiovascular disease with slight left ventricular enlargement and grade I retinopathy. The patient was otherwise alert and rational. Electroencephalographic study and radioactive arsenic scan confirmed a suspected lesion in the left frontal area. Upon operation a huge glioblastoma multiforme was encountered, but because of its size and invasiveness the prognosis was poor despite extirpation of the lesion at operation.

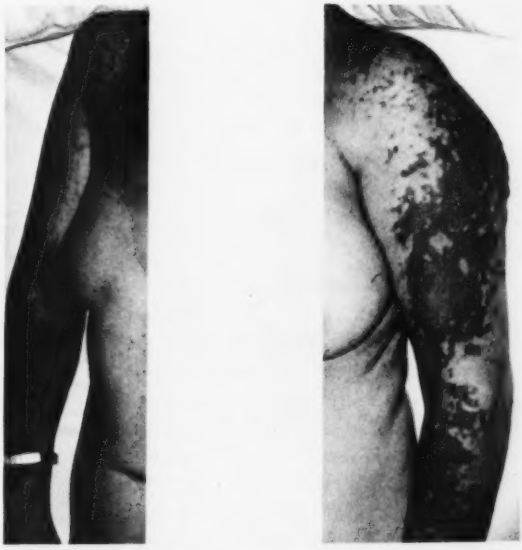

Figure 1. Bullous and purpuric eruption of trunk and upper extremities.

Postoperatively, an indwelling catheter was inserted in the urinary bladder. The patient received sulfamethoxypyridazine prophylactically, 2 grams daily for 2 days, then 1 gram daily. Nine days later a mild erythematous eruption was first noted over the arms, the trunk, and later the legs, becoming progressively urticarial, bullous, and purpuric, all within the ensuing 48-hour period. All medication was discontinued and therapy with antihistamines was begun. Despite these measures the eruption became increasingly florid and soon was generalized.

Examination at this time revealed (fig. 1) huge hemorrhagic bullae, purpuric areas, and myriad bull's-eye lesions consisting of a large central bulla surrounded by an indurated erythematous base. Also present were large and

small erythematous macular, papular, and plaquelike lesions of the trunk, extremities, palms, soles, and face. Mucosal lesions were present and were of special interest. The oral mucosa was severely eroded. There were punctate and larger lesions, ulcerated and crusted lesions, intact vesicles, and bullae on the vermilion border and on the buccal and anterior pharyngeal mucous membrane. The vaginal and anal mucous surfaces were similarly affected. The conjunctival mucosa was diffusely injected but no specific lesions were noted. Vesicles were never observed. In contrast to observations made by the author in a similar case,[5] the temperature never rose above 101° and was elevated only for 48 hours, despite the severe cutaneous lesions.

A daily dosage of 16 mg of triamcinolone was administered by the house staff for several days with little effect on the clinical picture. After dermatologic diagnosis was made the dose was elevated to 60 mg daily in divided dosage. After 36 hours on the larger dose no new lesions appeared. The medication was slowly tapered off over a 2-week period. All lesions abated and at discharge there were only sparsely situated hyperpigmented scaling areas reminiscent of the original process. The patient was then transferred to another institution for possible roentgenotherapy.

DISCUSSION

This case represents one of the severer reactions encountered following the use of sulfamethoxypyridazine. Lesions began on the ninth day of therapy and responded to large doses of triamcinolone after relative refractoriness for a few days on the usual daily dose of 16 mg. The symptoms at their onset simulated serum sickness, although no attempt was made to isolate passive transfer antibodies.

Despite the severity of the cutaneous lesions, the laboratory findings were normal. The peripheral blood count, urinalysis, and blood chemistry revealed no evidence of the systemic toxicity sometimes seen folowing adverse reactions from this drug. These include hepatitis;[6] hemopoietic abnormalities, especially leukopenia and hemolytic anemia;[7] and gastrointestinal, central nervous system, and cutaneous reactions.[7]

It is extremely important to suspect a drug reaction in any patient exhibiting an erythematous, urticarial, or purpuric eruption. All medications and ingesta should be withdrawn immediately, and later if desired—depending upon the exigencies of the situation and the severity of the reaction—reintroduced independently. Unless reintroduction is performed with great care, a severe reaction may be precipitated. The order of reintroduction should be in inverse relationship to the probability of causation—most unlikely drug given first, most likely drug last. The failure to recognize and withdraw an offending agent may result in severe and prolonged vasculitis with occasional fatalities.

The treatment of the cutaneous lesions is dependent upon the symptoms. In the above case bullae were treated with macerating wet dressings and débridement followed by gentian violet. The role of appropriate topical therapy is sometimes overlooked during a prolonged hospital stay, but resolution of the lesions may be facilitated by proper management. The steroids as antiphlogistic agents have resulted in great improvement in the morbidity and mortality of this hitherto dangerous clinical syndrome. Despite their great popularity they are still best utilized by those familiar with their idiosyncrasies. In the case under discussion, in which postoperative cerebral edema and electrolyte imbalance were feared complications, triamcinolone was ideal in that its saluretic properties did not tax an already hypertensive cardiovascular circulation and swollen brain.

One must not be misled by labels. If—as we have implied—"diseases" are tissue reactions to various stimuli, the physician ought not be comforted by the presence of an old friend, the diagnostic label. The term Stevens-Johnson syndrome—or, for that matter, erythema multiforme—demands a search for the etiologic factors upon which effective treatment depends. Thus, a purpuric erythema multiforme with or without mucosal lesions caused by the meningococcus or streptococcus is best handled with specific antibiotics, whereas drug reactions may be aggravated during vigorous treatment of a mythical infection with the very medication which, unsuspected, is the cause of the eruption.

SUMMARY

A 46-year-old saleslady received sulfamethoxypyridazine prophylactically for urinary retention following brain surgery for a glioblastoma multiforme. Nine days later she developed an acute Stevens-Johnson syndrome with cutaneous and mucosal lesions associated with brief low-grade fever. The patient responded to 60 mg of triamcinolone daily over a 2-week period.

A plea is made for proper etiologic evaluation of all cases of erythema multiforme with and without mucosal lesions.

ACKNOWLEDGMENT: The author wishes to express his appreciation to Dr. Albert Starr, on whose service the patient was admitted.

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MEDICAL SKILL AND PATIENT MORALE

The proper relationships between medical officers and combatant troops, whether within hospitals or without, are a most important determinant of morale. It is made no easier in time of war when civilians comprise the bulk of the army. Most civilian doctors live within the environment of their practices and take people as they find them. Any authority they may have to exercise involves individuals, with whom they deal one at a time. Within limits, they have a wide responsibility and their decisions are rarely questioned. Amongst their many early reactions to army life, they are likely to remember that they possess a specialized and essential skill and, coming from a hardy stock as exemplified by many illustrious names in the more rugged forms of sport and endeavor, they feel that they are as good as the next man. Both reactions are natural and true, but armies exist to win battles and the man who counts is the man with the gun. Medical officers, for all their worth, can never play more than a subsidiary part, but any frustration they may feel at times is more than offset by the opportunities they are given when they are called upon to act. They must learn the lessons of organization and delegation. When casualties arrive, their medical skill will be quickly and probably accurately assessed. They may have to learn almost overnight the routine management of diseases they have not previously encountered, and individual patients will not be slow to detect and comment upon any deviation from standard treatment. A rush of casualties may easily militate against a high standard of treatment, in which case good organization is essential. . . . If a happy compromise between organization and medical skill can be achieved, the morale of our patients will be well served.—NEVILLE OSWALD: Morale at the Base. *Journal of the Royal Army Medical Corps*, July 1959.

Military Medical News

MILITARY MEDICAL LEADERS. During an October meeting of the Department of Defense Civilian Health and Medical Advisory Council, the surgeons general of the military departments and Dr. Frank B. Berry, Assistant Secretary of Defense (Health and Medical), made an official visit to Fitzsimons Army Hospital in Denver, and the U.S. Air Force Academy, Colorado Springs. Shown at a Fitzsimons reception in their honor are, left to right: Major General Oliver K. Niess, Air Force Surgeon General; Rear Admiral Bartholomew W. Hogan, Navy Surgeon General; Lieutenant General Leonard D. Heaton, Army Surgeon General; Dr. Berry; and Major General John F. Bohlender, Fitzsimons Army Hospital commander.

CUSHING HEADS GROUP AT PAKISTAN MEETING

Dr. Edward H. Cushing, Deputy Assistant Secretary of Defense (Health and Medical) and members of the Interdepartmental Committee on Nutrition for National Defense were among United States representatives to the third annual conference of the Armed Forces Internation Committee on Nutrition, in Rawalpindi, Pakistan, on 19–24 October. Other countries represented at the meeting included Iran, Turkey, the United Kingdom, and the Philippines.

The Internation Committee on Nutrition, formed as a result of the interest created by U.S. nutrition survey teams in Iran and Pakistan, will hold its fourth conference in Washington, D.C., in August 1960. Prior meetings have been in Iran and Turkey.

The Interdepartmental Committee on Nutrition for National Defense, organized in 1954 under the chairmanship of Dr. Frank B. Berry, Assistant Secretary of Defense (Health

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and Medical), has participated in nutrition surveys in 12 countries in the last 4 years, the latest of which was completed in Ecuador, in September of this year. These surveys are designed to assess the nutritional status of troops in the host country, to assist in training personnel and provide initial equipment for continuing work in nutrition, and to adjust mutual assistance programs to specific needs.

NEW FIRST-AID KIT

A new first-aid kit for disaster use developed by the Air Force will be used in training, and distributed to Air Force personnel and installations. It is designed to supplement large scale disaster medical stores developed by the Army, and contains a "Mini-Breather" mouth-to-mouth resuscitator, splint, tourniquet, saline solution, and field bandage.

SURGEONS' CONFERENCE. Senior medical representatives of the three services discuss the agenda of the recent U.S. European Command Component command surgeons' conference in London, 23 September, with Admiral Robert L. Dennison, USN, Commander in Chief, U.S. Naval Forces, Eastern Atlantic and Mediterranean, second from left. They are, left to right: Major General Harold H. Twitchell, USAF, MC, Surgeon, U.S. Air Forces in Europe; Major General James P. Cooney, MC, USA, Chief Surgeon, U.S. Army, Europe; and Captain Charles L. Denton, MC, USN, Force Medical Officer, Commander in Chief, U.S. Naval Forces, Eastern Atlantic and Mediterranean.

DEPUTY DENTAL CHIEF

Colonel Pearson W. Brown, DC, USA, recently assumed the duties of assistant chief of the Dental Division, office of the Army surgeon general, succeeding Colonel Leland G. Meder, DC, USA, who has been assigned to the U.S. Army Medical Service Combat Development Group at Walter Reed Army Medical Center. He will serve under the chief of the Dental Division, Major General James M. Epperly, DC, USA. Colonel Brown was formerly director of the department of dental science at the Army Medical Service School, Brooke Army Medical Center, Texas.

ZIPORIN GIVEN GRANT

Dr. Zigmund Z. Ziporin, chief of the biochemistry section, U.S. Army Medical Research and Nutrition Laboratory, located at Fitzsimons Army Hospital, Denver, Colorado, has been awarded the Secretary of the Army's Research and Study Fellowship, to continue his research on the body's use of vitamin D at the Karolinska Institute in Stockholm, Sweden. After completing his work at the Institute, he will visit the University of Oslo, Norway, Cambridge University in England, Sorbonne University in France, and the Tubingen University in Germany.

The Army program, which was started in August 1956, offers career civilian employees of the Department of the Army an opportunity for recognition and professional development, and authorizes 6 to 12 months of advanced study or research for fellowship recipients in their special fields.

ANTARCTIC VOLUNTEERS

The Surgeon General of the Navy has called for regular and experienced reserve Medical Corps officer volunteers to man the Antarctic South Pole, Hallet, Byrd and McMurdo Sound Bases for Operation Deep Freeze 61. Volunteers will begin 7 to 8 months of medical and administrative training in April 1960, and will fly to Antarctica via Honolulu, Canton, Fiji and New Zealand in the fall, spending approximately 1 year on the ice at a base with 15 to 120 men. Officers who wish to volunteer should notify the Bureau of Medicine and Surgery by letter, attention Code 31.

OFFICIAL DECORATIONS

The following awards were recently announced by the Departments of the Army and Air Force.

Legion of Merit

Edward H. McCue, Col., USAF, DC*

Army Commendation Ribbon with Metal Pendant

Nick Perlmutter, Lt. Col., MC, USA

*First oak leaf cluster

WARFARE DEFENSE COURSE

A 4-week course in ABC Warfare Defense for experienced medical officers on active duty in the military services will begin 4 January 1960, at the U.S. Naval Schools Command, Treasure Island, San Francisco, California. The course will stress medical aspects of modern warfare and military peacetime operations, including atomic, biological, and chemical weapons systems, nuclear propulsion, mass casualties and isotope programs as well as military aspects of weapons systems and military countermeasures. Lectures will be given by both civilian and military speakers.

GELL GIVEN NEW AGARD POST

Captain Charles F. Gell, MC, USN, special assistant for medical and allied sciences in the Office of Naval Research and U.S. Navy member of the Aero Medical Panel of NATO's Advisory Group for Aeronautical Research and Development (AGARD), was elected chairman of the subcommittee on acceleration and bio-assay technics for human centrifuges at recent meetings of the Panel in Aachen, Germany. The subcommittee will study problems of international standardization of nomenclature and bio-assay end points for centrifuges.

Progress Notes

Brigadier General **Loyd E. Griffis,** USAF, MC, who retired as surgeon of the Strategic Air Command, Offutt Air Force Base, Nebraska, on 31 August, after 29 years of active service, has been succeeded by Brigadier General **Theodore E. Bedwell, Jr.,** USAF, MC, former deputy surgeon . . . Captain **John S. Gruggel,** MC, USN, U.S. Naval Propellant Plant, Indian Head, Maryland, has been elected as a fellow of the American College of Preventive Medicine . . . Colonel **Giles J. Strub,** USAF, MC, is the new commander of the USAF Hospital, Mather Air Force Base, California, succeeding Lieutenant Colonel **Oliver C. Hood,** USAF, MC, who has been transferred to France . . . Colonel **Roy F. Roberts,** MC, USA, has assumed command of the U.S. Army Hospital, Fort Lee, Virginia, replacing Colonel **George Horsfall,** who has retired. Colonel Roberts was chief of medical services at Fort Sill, Oklahoma.

Colonel **Philip A. Bergman,** MC, USA, chief of the professional and surgical services at U.S. Army Hospital, Fort Jackson, South Carolina, has assumed his new duties as head of surgery at Fitzsimons Army Hospital, Denver, Colorado, succeeding Colonel **John M. Salyer,** MC, USA, who retired in July . . . Colonel **Thomas W. Howell,** USAF, MC, chief of clinical medicine, USAF Hospital, Offutt Air Force Base, Nebraska, succeeded Captain **Charles B. Carty,** USAF, MC, as commander of the 837th Tactical Air Command Hospital, Shaw Air Force Base, South Carolina, when Captain Carty left for advanced medical training.

The following regular Navy Medical Corps officers retired on 1 September: Captain **Otto C. Baumgarten,** Naval Air Station, San Diego, California, after a naval career of 20 years; Captain **Clement D. Burroughs,** U.S. Naval Hospital, Corpus Christi, after 21 years active service; Captain **DeSales G. DuVigneaud,** U.S. Naval Hospital, San Diego, California, following 26 years of service; Captain **Edgar Ricen,** U.S. Naval Hospital, San Diego, California, after 27 years of service; and Captain **Jesse F. Richardson,** Naval Hospital, St. Albans, New York, after a naval career of 21 years.

Captain **Norman L. Barr,** MC, USN, a Navy specialist in aviation and space medicine research, retired 1 September after a naval career of 21 years. Director of the astronautical division of the Bureau of Medicine and Surgery until shortly before his retirement, he was associated with many accomplishments of the Navy medical research program, and is the only known officer in the military services who is entitled to wear five separate military aviation wings, including those of Naval aviator and Air Force pilot . . . Congress has approved transfer of Army and Navy General Hospital, Hot Springs, to the State of Arkansas to be used for health, vocational rehabilitation or educational purposes.

Dr. **Smith W. Ames,** senior aviation physiologist, office of the Air Force surgeon general, was elected vice president of the Human Factors Society of America, at the annual meeting of the organization on 17–18 September, in Santa Monica, California . . . Colonel **Rex H. Rhoades,** DC, USA (Ret.), a pioneer of the Army Dental Corps and former chief of the dental division, office of the Army surgeon general, died 11 September at Walter Reed Army Hospital, aged 83 . . . Lieutenant **Robert W. Frazier,** MC, USN, has reported for duty as radiologist at the U.S. Naval Hospital, Newport, Rhode Island, from the U.S. Naval Hospital, Philadelphia . . . Major **Henry K. Silberman,** MC, USA, assistant chief of the psychiatric service, Walter Reed Army Hospital, has been awarded a certificate of

achievement for his work with the 75th Station Hospital, Stuttgart, Germany.

Captain **Haskell M. Wertheimer,** MC, USN, recently reported as chief of surgery at the U.S. Naval Hospital, Newport, Rhode Island, from the U.S. Naval Hospital, Yokosuka, Japan . . . Lieutenant Colonel **Edward S. Bres,** MC, USA, has succeeded Colonel **Irving R. Lyman,** MC, USA, as chief of professional services, U.S. Army Hospital, Fort Lee, Virginia, following the latter's assignment to the 98th General Hospital in Neubrucke, Germany . . . Colonel **Karl F. Ehrlich,** DC, USA, also assigned recently to the 98th General Hospital in Neubrucke, has been replaced in the office of the Army surgeon general, dental division, by Lieutenant Colonel **James M. Enmeier,** DC, USA, deputy dental surgeon, Sixth U.S. Army, Presidio of San Francisco, California . . . Colonel **John E. Boysen,** USAF, MC, director of professional services, Headquarters, USAFE, Wiesbaden, Germany, has been assigned as deputy surgeon, Headquarters, Air Material Command, Wright-Patterson Air Force Base, Ohio.

Colonel **John J. Pelosi,** MC, USA, former commanding officer, U.S. Army Hospital, Fort Hood, Texas, has assumed command of the 68th Medical Group, Fort Meade, Maryland . . . Rear Admiral **Cecil L. Andrews,** MC, USN, commanding officer, U.S. Naval Hospital, St. Albans, New York, was promoted to his present rank in September, shortly before reporting as assistant chief for personnel and professional operations, Bureau of Medicine and Surgery, Washington, D.C. . . . Lieutenant Colonel **Robert B. Franklin,** MC, USA, commander of the 5th Surgical Hospital, Heidelberg, Germany, recently assumed his new duties as chief of general medicine, Fitzsimons Army Hospital, replacing Major **William H. Hall,** MC, USA, who left in June for advanced medical training at Brooke Army Medical Center.

Brigadier General **Francis W. Pruitt,** MC, USA (Ret.), chief of Walter Reed Army Hospital's department of medicine until his retirement 31 August, has been named coordinator of graduate education at Hillcrest Medical Center, Tulsa, Oklahoma . . . Captain **Horace L. Jones, Jr.,** MC, USN, U.S. Naval Hospital, Chelsea, Massachusetts, has been elected to fellowship in the American College of Chest Physicians and in the American College of Cardiology . . . Dr. **Roland B. Mitchell,** chief of the medical sciences division, U.S. Air Force School of Aviation Medicine, recently was given a sustained superior performance award, the second highest rating which can be earned by a federal employee . . . Rear Admiral **Bartholomew W. Hogan,** MC, USN, Surgeon General of the Navy, was elected as an honorary fellow of the International College of Surgeons at the 24th annual meeting of the North American Federation of the organization in Chicago.

Captain **Merrill H. Goodwin,** MC, USN, has been appointed assistant chief for Aviation Medicine, Bureau of Medicine and Surgery, following the retirement of Captain **Oran W. Chenault,** MC, USN, on 30 September 1959 . . . Lieutenant Colonel **Cordelia Myers,** AMSC, USA, was recently promoted to her present rank at a ceremony in which she was sworn in as chief, Occupational Therapist Section, and assistant chief, Army Medical Specialist Corps, office of the Army surgeon general . . . Installation of new low pressure chambers at the Marine Corps Air Station, El Toro, California; the Marine Corps Auxiliary Air Station, Beaufort, South Carolina; and the Naval Air Station, Cecil Field, Florida, should be completed early in 1960 . . . Lieutenant Colonel **Lucile C. Slattery,** USAF, NC, first flight nurse to assist in evacuating wounded military personnel dur-

ing the Korean conflict, and holder of the Bronze Star and Air Medal with three oak leaf clusters for combat work during World War II and the Korean conflict, has been named chief of the department of flight nursing, U.S. Air Force School of Aviation Medicine.

Captain **Sidney A. Britten,** MC, USN, head of the communicable diseases branch, Preventive Medicine Division, Bureau of Medicine and Surgery, has been named officer in charge of Navy Preventive Medicine Unit No. 7, located in Naples, Italy . . . Colonel **Bryan C. T. Fenton,** MC, USA, former deputy commander, has assumed command of Martin Army Hospital, Fort Benning, Georgia, succeeding Colonel **Robert B. Skinner,** who now heads Brooke Army Hospital, Fort Sam Houston, Texas . . . Captain **Derrick C. Turnipseed,** MC, USN, retired 1 October as chief of surgery at the U.S. Naval Hospital, Newport, Rhode Island, after a naval career of more than 20 years . . . Physicians attending the 41st annual meeting of the Southwestern Medical Association in Roswell, New Mexico, were invited to tour the new USAF Hospital at Walker Air Force Base, scheduled for completion 15 November, which is commanded by Colonel **Lee F. Ferrell,** USAF, MC.

Lieutenant Colonel **William J. Wilson,** MC, USA, recently succeeded Colonel **Philip R. Beckjord,** MC, USA, as assistant chief of preventive medicine and chief of the public civil health branch, office of the Army surgeon general. Colonel Beckjord will command the 65th Medical Group, Eighth U.S. Army, Korea . . . Captain **Robert C. Doolittle,** MC, USN, assistant chief of the amputee service, U.S. Naval Hospital, Oakland, California, served as chairman of the joint planning committee for the first Armed Services Orthopedic Seminar held at that hospital in September . . . Colonel **John Kuitert,** MC, USA, Fort Lewis, Washington, has been elected to the executive board of the American Institute of Ultrasonics in Medicine . . . Captain **John A. Nagle,** MC, USA, recently became chief of the radioisotope section, at Fitzsimons Army Hospital, Denver, Colorado.

ACCREDITED HOSPITALS

The Joint Commission on Accreditation of Hospitals, composed of representatives of the American College of Physicians, American College of Surgeons, American Medical Association, and the American Hospital Association, has inspected and accredited the U.S. Naval Hospitals at the following locations:

Continental United States

Annapolis, Md.
Bainbridge, Md.
Beaufort, S.C.
Bethesda, Md.
Bremerton, Wash.
Camp Lejeune, N.C.
Camp Pendleton, Calif.
Charleston, S.C.
Chelsea, Mass.
Corpus Christi, Tex.
Great Lakes, Ill.
Jacksonville, Fla.
Key West, Fla.
Memphis, Tenn.
Newport, R.I.
Oakland, Calif.
Pensacola, Fla.
Philadelphia, Pa.
Portsmouth, N.H.
Portsmouth, Va.
Quantico, Va.
St. Albans, N.Y.
San Diego, Calif.

Overseas Areas

Guam, Mariana Islands
Guantanamo Bay, Cuba
Yokosuka, Japan

JCAP MEETING

The annual business meeting of the Joint Committee on Aviation Pathology was held at the Armed Forces Institute of Pathology on 6 November under the chairmanship of Captain Carl E. Wilbur, MC, USN. Canadian members in attendance were Group Captain J. R. Jackson and Wing Commander D. O. Coons, RCAF, and Desmond Magner, M.D. Wing Commander J. K. Mason and Group Captain J. S. Howitt, RAF, represented the United Kingdom.

SAC NEW DENTAL SURGEON

Colonel George N. Schulte, USAF, DC, director of dental services at the Gunter Branch of the U.S. Air Force School of Aviation Medicine, Gunter Air Force Base, Alabama, was recently named as command dental surgeon of the Strategic Air Command, Offutt Air Force Base, Nebraska. He is a 1940 graduate of the University of Minnesota School of Dentistry.

DEATHS

NICKELL, RAYMOND OLIVER, Captain, DC, USN, of St. Louis, Missouri; assigned to U.S. Naval Hospital, Philadelphia, Pennsylvania; appointed as ensign in the United States Naval Reserve 25 May 1942; resigned commission to revert to enlisted status 11 May 1943; graduated in 1944 from the St. Louis University School of Dentistry; appointed as a lieutenant (j.g.) in the United States Naval Reserve 21 September 1944; reported for active duty 9 October 1944; commissioned as a lieutenant (j.g.) in the United States Navy 23 August 1947; died 6 October 1959, aged 38, at the U.S. Naval Hospital, Philadelphia, of pseudomonas septicemia.

RUEBUSH, TRENTON KIEFFER, Captain, MSC, USN, of Elkton, Virginia; assigned to Naval Medical Research Unit No. 3, Cairo, Eygpt; graduated in 1931 from Bridgewater College, Bridgewater, Virginia; received the degree of doctor of philosophy in 1936 from the University of Virginia, Charlottesville; appointed a lieutenant (j.g.) in the United States Naval Reserve 1 May 1941; reported for active duty 28 July 1941; commissioned as a commander in the United States Navy 27 August 1947; died 26 September 1959, aged 48, in Cairo, of coronary occlusion.

RUTLEDGE, JOHN RICHARD, Captain, AFRes, MC, of Greenwich, New York; assigned to USAF Hospital, Andrews Air Force Base, Maryland, with temporary duty at the USAF School of Aviation Medicine, Brooks Air Force Base, Texas; graduated in 1958 from the University of Rochester School of Medicine, Rochester, New York; appointed a second lieutenant in the Air Force Reserve 12 June 1956; reported for active duty 7 September 1956; released from active duty 17 June 1958; appointed a first lieutenant in the Air Force Reserve 24 June 1958; reported for active duty 24 July 1959; died 25 August 1959, aged 27, near Floresville, Texas, as a result of an automobile accident.

VINCENT, JAMES HARRY, Major, MSC, USAR, of Biloxi, Mississippi; assigned to U.S. Army Hospital, Camp Leroy Johnson, New Orleans, Louisiana; served in enlisted status from 3 September 1934 to 23 February 1943; appointed a second lieutenant in the Army of the United States 24 February 1943; released from active duty 16 December 1946; recalled to active duty 9 September 1950; died 11 September 1959, aged 42, at Singing River Hospital, Pascagoula, Mississippi, of myocardial infarction.

This Is Your A.M.A.

THE ROLE of the physician in aiding a person to prepare for retirement is most important. The military physician, whether dealing with service personnel or their dependents, can provide perspective for the years after leaving the service. This month's article on the military physician and preparation for retirement has been prepared by the Economic Research Department of the American Medical Association.

Wherever one turns in the thinking of the retirement years, there echoes a theme so crisply stated by Dr. Edward Bortz, past president of the American Medical Association, many years ago: "The society which fosters research to save human life cannot escape responsibility for the life thus extended. It is for science not only to add to the years of life but more important to add life to the years." This concept of adding life to years has been widely accepted. The planning by those near retirement should emphasize continuation of useful purposeful activities in addition to economic planning, enabling the retired person to maintain an integrated role in society.

But "old age" is not something which happens to everyone at a definite uniform point in the calendar of his life. Nevertheless, for statistical purposes an arbitrary "magic dividing line" is drawn between middle age and old age on the 65th birthday. Those approaching 65 years of age are not a homogeneous group, and in the attempt to add life to years the retirees may have different reactions to the years of retirement. Recent research has given indications of these various reactions to retirement.

Retreat. In some cases the retired person retreats into the past. He daydreams of what has happened and obtains much satisfaction from just sitting and thinking about things. When certain aspects of daily reality are unpleasant, the person retires into forgetfulness and evokes happy experiences from the past. In addition, he has a tendency to forget specific recent events. This latter circumstance may cause friction in the family relationship.

Alienation. This is a form of unfortunate retirement experience characterized by the feeling that "there's just no point in living" and "things just keep getting worse and worse." The retiree usually voices extreme dissatisfaction with his present situation; even the past is a source for regret rather than comfort. Because of hopelessness and despair life no longer appears worth living. For the family, these attitudes may cause enough discord that institutionalization may be urged for the individual.

Innovation. This retirement attitude is not merely the acceptance of the limitations of old age but an attempt to reconcile oneself to these limitations. It is also the creation of an initiative in establishing new relationships and entering new activities. For these people life continues to be meaningful and enjoyable even though in retirement.

The committee on Aging of the American Medical Association has prepared medicine's blue print for the new era of aging. In brief outline the program calls for: (1) stimulation of a realistic attitude towards aging; (2) promotion of health maintenance programs and wider use of restorative and rehabilitative services; (3) extension of effective methods of financing health care for persons over 65; (4) expansion of skilled personnel training programs and improvement of medical

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From the Council on National Defense of the American Medical Association. The views and opinions expressed are not necessarily those of the Department of Defense.—*Editor*

and related facilities for older people; (5) amplification of medical and socioeconomic research in the problems of aging; and (6) leadership and cooperation in community activities for senior citizens.

This program will not be a success unless the retiree is aided in dismissing some of the myths of aging from his mind. A military physician can be an integral part in stimulating a realistic attitude towards aging by providing the necessary background to answer these widespread myths:

1. *Age is normally considered an indicator of disease.* As one specialist in geriatrics has pointed out, "The important point concealed here is the almost complete independence of 'health' from disease; as long as one is able to conduct himself by his own efforts physically, economically, and socially, he is apt to consider himself healthy regardless of his diabetes, or his arthritis or heart condition." Recent research has shown the majority of aged persons to be without functional disability.

2. *Age is equated with sickness.* This is due in part to a failure on our part to differentiate disease from the aging process. This is another instance of the negative tendency to perceive impairment but not integrity, disability but not ability.

3. *There is a "magic dividing line"* determining old age, that is, that physical, physiologic and social functioning follow the same set course or "stages of decline" for everyone. But there is no single crucial age period during which the general adaptation to the process of aging is likely to occur in the personality structure of an individual. When adaptations do show up even within the same group, they do so in highly contrasting ways. Whether at work or in retirement, each person has a different pattern of life.

For retirement to be successful these myths on health and aging must be answered. Of great importance for the military physician will be a program to bring these answers on aging to the attention of all service personnel. It is the purpose of the American Medical Association program to bring life to years in retirement; but for the retirement to be that of innovation, the individual must recognize the courses open to him. The time to start this recognition is now.

TOO MUCH AND TOO MANY

Medical literature today is in a dismal state. In 1957, more than 200,000 medical articles appeared in over 4,000 medical journals. In that year, 659 journals of medical interest were published in the United States alone, according to the compilation of the World Medical Periodicals by the World Medical Association. Specialization no longer offers any refuge from this inundation of words. In my own field of major interest, the cardiovascular system, 60 pertinent journals were being published in 1957, 12 of them in English. It is manifestly impossible for anyone—clinician, student, pedant, research worker—to have more than a superficial acquaintance with current publications. We have too many journals, most journals have too many articles, and most articles have far too many words.—I. DONALD FAGIN: Too Many Words: A Plea for the Medical Reader. *Mississippi Valley Medical Journal,* September 1959.

Book Reviews

THE SYMPTOM AS COMMUNICATION IN SCHIZOPHRENIA, edited by Lt. Col. *Kenneth L. Artiss*, MC, USA, with four contributors. 233 pages. Grune & Stratton, Inc., New York, N.Y., 1959. Price $5.75.

This volume reports an investigation of schizophrenia carried on at the Walter Reed Army Institute of Research. The study was concerned with youthful patients who developed schizophrenic symptoms severe enough to require hospitalization within their first 16 weeks of military service. The importance of this disorder as a military problem is discussed, and emerging concepts of military mental hygiene are concisely reviewed. One of the major objectives of the project was an investigation of the course of schizophrenia in the military setting. Although the psychologic decompensation of these men occurred after their induction, antecedent causes in the family were sought through visits to the home and community. Characteristic patterns of family interaction which fostered conflicting attitudes in the patients are clearly described. In other chapters the sociology of basic training from the trainee's point of view is described with unusual insight, and the effect of these factors upon the developing schizophrenic illness is discussed. Another major objective of this work was the further development of principles of milieu therapy applicable to these patients. The first and final chapters develop a concept of schizophrenic behavior as meaningful and understandable communication serving a defensive purpose. In their interaction with others these patients arrive at characteristic patterns of behavior which both hide and prolong underlying conflicts. Four such patterns which have been seen repeatedly are described and illustrated. When the staff understands the meaning of the behavior, it can respond in a realistic and therapeutic manner. The operation of an experimental milieu treatment ward organized on these principles is described. This book will be highly rewarding for psychiatrists, social workers, and psychologists. It is especially pertinent for those in military service who are concerned with the behavioral sciences.

LT. COL. DON E. FLINN, USAF, MC

THE GREAT PULSE, Japanese Midwifery and Obstetrics through the Ages, by *Mary W. Standlee*. 192 pages; illustrated. Charles E. Tuttle Co., Rutland, Vt., 1959. Price $4.50.

At first glance a subject such as Japanese midwifery does not seem a very promising one for a book of interest to the general reader. However, this first impression proves to be completely erroneous. This little work on what seems an obscure field of medical history is full of interesting and entertaining information to both the medical and the lay reader and it is a well-organized, well-written, and splendidly illustrated study of the subject. The author has presented an excellent view of the traditions and customs surrounding pregnancy and childbirth in Japan, and has given a good picture of the conditions surrounding the Japanese woman in the past and today. These conditions are compared with those of other women and cultures, and there is a combination of medicine, anthropology, and sociology in just the right proportions. Although not a complete or formal history of obstetrics in Japan, the book is a remarkably fine

outline of the subject. There is a brief glossary of Japanese terms related to childbirth, notes on bibliography, and an index. The format, paper, and typography are excellent and the book has an attractive and well-designed jacket. The reviewer commends this work as good reading not only for members of the medical and allied professions, but for anyone interested in Japan or the Orient.

CAPT. LOUIS H. RODDIS, MC, USN (RET.)

COLOR ATLAS OF MORPHOLOGIC HEMATOLOGY, With a Guide to Clinical Interpretation, by *Geneva A. Daland*, B.S. Edited by *Thomas Hale Ham*, M.D. 72 pages; illustrated by *Etta Piotti*. 16 color plates. Harvard University Press, Cambridge, Mass., 1959. Price $6.75.

This is a book that Harvard University Press ought to be ashamed of. The second edition, now at hand, is as objectionable as the first edition. I refer entirely to the participation of the publisher and printer and not at all to the work of the three outstanding people who prepared the book: Geneva Daland, one of the world's best hematology technologists and a first-rate teacher; Thomas Hale Ham, editor, educator and scientist; and, finally, Etta Piotti, an artist who was probably America's best delineator of blood cells. This book is an atlas and the sixteen color plates which illustrate it are its reason for being. I have seen Miss Piotti's original drawings, and I have seen the plates which illustrate the first and second editions of this book. The drawings are beautiful. The reproductions—even as I look at them it is difficult to believe that such poor photoengraving exists, much less is offered for sale. To begin with, the screen is of such coarseness that all subtlety of coloration is inevitably lost. All of the plates are out of register, some of them as much as a millimeter; a red image protrudes from the right side of the blood cells, a blue image protrudes from the left side to give them the fractured look of a poorly printed Sunday comic sheet. Where the register is not so drastically dislocated the cells merely seem out of focus or give one the feeling that his eyes are not converging properly. The condition of some of the pictures suggests the plates are worn, so that the smooth surfaces of the red cells are blotched or streaked and the margins of the cells are lined by a dirty crust of ink.

LT. COL. WILLIAM H. CROSBY, MC, USA

HEY GROVES' SYNOPSIS OF SURGERY, edited by *Sir Cecil Wakeley*, Bt., K.B.E., C.B., LL.D., M. Ch., D. Sc., F.R.S.C., F.R.S.E., F.A.C.S., F.R.A.C.S. 15th edition. 650 pages; illustrated. Williams & Wilkins Co., Baltimore, Md., 1958. Price $8.50.

Despite the great strides and advancement made in surgery since the first edition in 1908, and particularly in the past four years since the fourteenth edition, the editor has succeeded admirably in retaining the compact size of the volume in the present edition. In its original composition, this book was intended as a ready and convenient reference for the busy practitioner, the student in surgery, and those preparing for examinations. With the present volume an effort has been made to provide the same degree of factual information covering the broad scope of present-day clinical surgery. The "coat-pocket, top-drawer" size facilitates its convenience. The special arrangement of headings, type, and indented margins together with 190 illustrative figures and 13 anatomic plates on surface markings enables the reader, in the words of the original author "to see the scope of the subject at a glance, and to refer to any part of it at will." The contents of the present edition encompass the

basic facets of general surgery in a broad sense, overlapping some of the clinical boundaries which have become sacrosanct to the daughter of surgical specialties. This is a reassuring reminder to those preparing for surgery that such knowledge is not alone reserved for the specialties. In addition to those subjects ordinarily considered within the scope of general surgery, the editor has covered the basic fundamentals of orthopedics, vascular surgery, neurosurgery, and thoracic surgery. The sections dealing with antibiotics and chemotherapy will soon be outdated, but the rest of the material is basic enough to be of value for repeated reference. This book will be of real value to the general practitioner who is called on to diagnose and treat surgical conditions in his busy practice. The internist would do well to have a copy on his desk, available for reference. Medical and nursing students, surgical residents, and those preparing for state board medical examinations will find this book a very practical study reference.

LT. COL. ALAN B. EAKER, MC, USA

THE PLASMA PROTEINS, Clinical Significance, by *Paul G. Weil*, B.A., M.D.C.M., M. Sc., Ph. D. 133 pages. J. B. Lippincott Co., Philadelphia, Pa., 1959. Price $3.50.

This short monograph helps to clarify many complexities in a newly explored area. It contains a simplified classification of the plasma proteins, identified chiefly by electrophoresis. There is a brief and easily understood description of the major clinical entities characterized by abnormalities of the plasma proteins. The functional abnormality produced by abnormalities in albumin, globulin, and fibrinogen fractions is described clearly. The author has had great experience in the field and summarizes his knowledge well. The book is well written, and the chapters and subheadings are well arranged. The only major criticism is the small size of the bibliography and, more important, the lack of specific references to the bibliography. The book is highly recommended for all clinicians, interns, and students. In a fast-changing field this reviewer felt his footing considerably more secure after reading it.

CAPT. RUFUS J. PEARSON, JR., MC, USN

SCIENCE AND PSYCHOANALYSIS, Individual and Familial Dynamics, Volume II, edited by *Jules Masserman*, M.D. 214 pages. Grune & Stratton, New York, N.Y., 1959. Price $6.75.

This volume is a condensed report of the transactions of the Academy of Psychoanalysis meetings of December 1957 and May 1958. The first part, on masochism, presents a distillation of the opinions of a number of distinguished analysts, with particular emphasis on definitions, dynamics, and the therapeutic dilemma encountered in this group of conditions. It appears to fall short of the prediction of the editor which was ". . . in published form, perhaps an historic contribution in the annals of psychoanalysis as a science." The second part, on familial and social dynamics, presents more experimentally oriented papers by Jackson, Lidz, and others working in the field of observation and treatment of closely interacting (usually family) groups. To this reviewer, this latter portion of the book was both more interesting and more rewarding. One weakness of this type of publication (and there seem to have been many in this pattern lately) is that, despite good editing and some indexing, it is really only a collection of papers on related topics. However, it is good reading, informative in limited areas, and really everything it purports to be.

LT. COL. WILLIAM H. ANDERSON, MC, USA

THE CHILD WITH A HANDICAP, A Team Approach to His Care and Guidance, edited by *Edgar E. Martmer*, M.D., with 27 contributors. 409 pages; illustrated. Charles C Thomas, Publisher, Springfield, Ill., 1959. Price $11.

In reviewing this book the pediatrician cannot help recalling the familiar face of the editor who for many years in an executive capacity annually viewed the large audiences of the American Academy of Pediatrics from the platform. We now know with what he was preoccupied. From this vantage point he has been able to bring together in one volume experts in the many fields of medicine, psychology, education, and social work, as well as the parent, all with the goal of assuring the child with a handicap the opportunity of reaching his highest potential in all spheres of his growth and development. These 27 contributors, regardless of their professional designation and attainment, are ever mindful of the multidiscipline approach as the most successful one in dealing with these many facet problems. All persons, be they professional or lay groups, interested in helping the millions of handicapped children in our nation to gain their objective will find this volume interesting and helpful in reaching a greater understanding of the care and management of the handicapped child through the team approach.

COL. OGDEN C. BRUTON, MC, USA

PHYSIOTHERAPY IN OBSTETRICS AND GYNECOLOGY (Including Education in Childbirth), by *Helen Heardman*, revised by *Maria Ebner*, M.C.S.P. 2d edition. 244 pages; illustrated. Williams & Wilkins Co., Baltimore, Md., 1959. Price $5.

In reading this book one must remember that it is written by physiotherapists whose ideas may vary from certain accepted medical practices in the United States. The intent of this book is to prepare the expectant mother for "natural childbirth," which is defined as that state when on the physical plane labor is physiological and unobstructed and on the mental plane the mother-to-be is unafraid, reaching the climax of the actual birth, fully conscious, confident and joyous. This volume, therefore, is published to aid in the education of the physiotherapist who, in England, has gradually assumed the responsibility for the ante-natal education of the mother. All obstetricians must agree that the pregnant patient, who is relaxed, unafraid, and has confidence in her attendants, approaches labor and withstands it so much better than her opposite type—the tense, fearful, uneducated, and lonely woman. This book is recommended for the midwife and the physiotherapist.

CAPT. HENRY J. HUNTER, MC, USN

THE TREATMENT OF DIABETES MELLITUS, edited by *Elliot P. Joslin*, A.M., M.D., Sc. D.; *Howard F. Root*, M.D., H.H.D.; *Priscilla White*, M.D., Sc. D.; and *Alexander Marble*, A.M., M.D. 10th edition, revised. 798 pages; illustrated. Lea & Febiger, Philadelphia, Pa., 1959. Price $16.50.

The tenth edition of this classic text book of diabetes has been completely revised, as is attested by the numerous references to the recent literature in all parts of the book. A new chapter on the oral hypoglycemic agents discusses fully the arylsulfonylurea compounds and the biguanides. The format has changed only slightly since the last edition in 1952: the chapter on diet has been incorporated into the chapter on treatment, and the chapter on physiology has been subdivided into chapters on physiology and applied physiology. The admirable system of placing references at the bottom of the page has been continued. Dr. Renold has written an excellent chapter integrating the ad-

vances in our knowledge of the physiology of diabetes mellitus. An important new concept has been the demonstration of an alternate pathway for the utilization of glucose-6-phosphate: The phospho-gluconate-oxidative pathway; reduced TPN (triphosphopyridine nucleotide), a product of this pathway, appears to be essential for the biosynthesis of fatty acids. The studies by Ditzel and associates of the bulbar conjunctiva through use of the stereoscopic dissecting microscope have provided an important new clinical method for the evaluation of vascular disease in the diabetic since *in vivo* examination of terminal arterioles and smaller venules may be accomplished, a procedure heretofore impossible because of the limitations of magnification in the use of the ophthalmoscope. Dr. White persists in her strong conviction that female sex hormonal therapy, properly given, is an essential part of the treatment of the pregnant diabetic. Dr. White reports a clinical study, prompted by the results of animal experiments by Houssay, of an attempt to prolong the partial remission phase of the juvenile diabetic through the use of female sex hormones or cortisone as adjuncts to therapy; the favorable course observed in some of the patients should stimulate further investigation by other clinicians. The chapter on surgery and diabetes contains good general principles but for the benefit of the younger physician more specific, detailed information on nutrition and insulin dosage schedules in various types of surgery would be helpful, especially with consideration of such factors as emergency surgery, duration of surgery, prolonged parenteral fluid therapy, and type of anesthesia. The chapter on nondiabetic melituria does not mention the Fanconi syndrome, a rare disease but of increasing interest in recent years in the study of renal tubular faults in reabsorption. The theme of this excellent book, further strengthened by seven more years of experience, remains the same as in the previous edition: careful control of diabetes mellitus as demonstrated by a sugar-free urine, normal blood sugar, and normal cholesterol accomplished through intelligent coordination of insulin dosage, diet, exercise, and education provides the best program to give the diabetic his chance to live many happy, productive years, free from the complications of his disease. This book is recommended to all physicians and should be acquired by all medical libraries.

MAJ. PERRY B. MILLER, USAF, MC

THE CLINICAL EXAMINATION OF PATIENTS WITH ORGANIC CEREBRAL DISEASE, by *R. Klein*, M.D., and *W. Mayer-Gross*, M.D., F.R.C.P. 96 pages; illustrated. Charles C Thomas, Publisher, Springfield, Ill., 1959. Price $3.50.

The goals of this small volume are stated as "presenting a standard procedure by which all essential data can be collected, as unbiased by theory as possible." This is an ambitious undertaking. The book is unique in that all aspects of organic mental testing are represented in one collection. Because of its condensed nature, it contains many technical words which would be discouraging for the beginner. The authors frequently state "at a neurological level" one finds certain associated neurologic signs more commonly with certain kinds of organic brain disease. This implies that the clinical examination of the patient with organic cerebral disease is a function of some other group than the neurologist, implying the psychiatrist or psychologist. The authors actually have broadened the basis of neurology rather than laying a foundation for separate specialization. This book is recommended for the individual with experience in neurology, psychiatry, or psychology.

MAJ. WARREN E. PORTER, MC, USA

TRANSPLANTATION OF TISSUES, Skin, Cornea, Fat, Nerves, Teeth, Blood Vessels, Endocrine Glands, Organs, Peritoneum, Cancer Cells, Vol. II, edited by *Lyndon A. Peer*, M.D., with 12 contributors. 690 pages; illustrated. Williams & Wilkins Co., Baltimore, Md., 1959. Price $20.

This second volume of Dr. Peer's work begins with introductory chapters reviewing cellular behavior and basic laws of transplantation of tissue. These, and the chapters on skin, cornea, fat, blood vessels, endocrine glands, and organs are especially rewarding. The chapter on fat might well be labeled derma-fat, not only because the combined graft is recommended for use but also because the derma may well be the important constituent of the graft. The book closes with a chapter on tissue culture. Where possible, the chapters have been arranged to present the experiments on animals or their tissues separately from the investigations on humans. The closing paragraphs of each chapter are devoted to clinical applications that exist at our present state of knowledge. Quite understandably beyond the scope of one man is a volume of this nature, dealing as it does with a variety of tissues, each tissue having a variety of facets to its study and the whole problem overcast by the complexities existent in the transplantation of tissue. Dr. Peer has enlisted the aid of 12 fellow contributors to accomplish this task, many of whom are leading figures in their respective fields, such as Castroviejo, Deterling, Hume, Krohn, Medawar, and others. The book is well presented and brings to the reader the current status of transplantation. Known facts are stressed, controversial points are acknowledged as such, and lines along which fruitful research might be conducted are pointed out. Both the clinician and the research worker, interested in tissue transplantation, will find this book of value. Although a good portion of the book is devoted to historical and experimental background, to anyone interested this makes fascinating reading. Moreover, there are many practical surgical suggestions. To those who would go deeper, the available bibliography is extensive and the way is pointed to unsolved problems.

CAPT. J. R. CONNELLY, MC, USN

SYNOPSIS OF TREATMENT OF ANORECTAL DISEASES, by *Stuart T. Ross*, M.D., F.A.C.S., F.I.C.S. 240 pages; illustrated. C. V. Mosby Co., St. Louis, Mo., 1959. Price $6.50.

This is an admirable effort on the part of the author to present a manual of treatment that is devoid of any extraneous material. Each subject is discussed briefly, with no theories, statistics, arguments or bibliography. It is therefore a book suited for the general practitioner and general surgeon, as well as for the student and resident. A short anatomic description with good diagrams is included, with a presentation of common symptoms and methods of taking a history and performing protologic examinations. One chapter on the diagnosis, treatment, and pre- and postoperative care of hemorrhoids is extremely interesting and clearly put. This should be of great value to military hospitals, where hemorrhoidectomy is a frequent procedure. Diagrams of positions and procedures are clear and simple, and roentgenographic reproductions are well done. Major surgical technics have been omitted in order to preserve the simplicity and conciseness of this synopsis. This reviewer would highly recommend that every busy general practitioner and general surgeon read this book several times.

LT. COL. PHILIP A. COX, MC, USAF

HEADACHE, Diagnosis and Treatment, by *Arnold P. Friedman*, M.D., and *H. Houston Merritt*, M.D. 401 pages; illustrated. F. A. Davis, Publishers, Philadelphia, Pa., 1959. Price $8.

Headaches have long been a prevalent symptom of many diseases, but for many years most textbooks about headaches were concerned with experimental work in the field. This volume consists of 13 chapters concerning mechanisms, diagnosis and drug therapy of headaches; eye, ear, nose, and throat as causes of headaches; the role of allergy and systemic disease as the cause of headaches; a chapter on migraine and tensional headaches; the psychological role in headaches; major cranial neuralgia; and the cervical spine role in head pain. It is probably the most comprehensive and practical textbook on the subject. The chapters are written by outstanding authorities in their particular fields and are excellently assembled by the authors. There are notable chapters on mechanism, pharmacotherapy, diagnosis, migraine and tensional headaches. If one had any criticism of the textbook it would be that there is duplication of some portions of the chapters, but even this gives one a refreshing idea as to the variability of approach to the headache problem. This book has practical value to all physicians inasmuch as the symptom of headache makes its appearance in many diseases. It is highly recommended as a reference text in the evaluation of head pain.

MAJ. EUGENE W. EBERLIN, MC, USA

THE HISTORY AND PHILOSOPHY OF KNOWLEDGE OF THE BRAIN AND ITS FUNCTIONS, An Anglo-American Symposium, London, July 15th–17th, 1957, edited by *F. N. L. Poynter*, Ph. D., F.L.A. 272 pages. Charles C Thomas, Publisher, Springfield, Ill., 1959. Price $5.50.

This delightful collection of papers is one of the rarest of recent pleasures this reviewer has experienced. The papers range from a series of tart comments to detailed essays on such subjects as the origin of language and the brain versus the mind. The paper by Sir Francis Walshe falls into the former group, while a paper by Mary Brazier is along the studious, academic, essay line. The other authors are of similar caliber; they are clearly professionally mature individuals, with some interest or experience in their historical subject. An example among many would be Henry McIlwain's coverage of "Chemical Contributions, Especially from the Nineteenth Century, to Knowledge of the Brain and Its Functioning." Basic science has the floor—that is, anatomy, physiology, and electricity. Nervous system disease gets relatively little attention. There is a preponderance of credit given to British men of science, but in many ways this is unavoidable in that the symposium was planned by British and American authors. Sharp criticisms in regard to the errors of our predecessors appear along with the accounting of their achievements. One has the feeling that the symposium, despite its serious aspect, was probably highly enjoyable to all of the participants and the audience, because of the note of pleasant reminiscence in many of the papers. Macdonald Critchley pokes some fun here and there. One has the feeling, too, that the authors have graduated from the highly formal, stiff, high-hat stage to at least the derby stage, which makes the entire collection of papers much more readable. For the experienced historian, certainly, the book in its over-all coverage must be considered somewhat lacking in detail. For the clinical neurologist, it provides an extremely welcome perspective and is a worthwhile addition to other similar enterprises. For the resident and intern, it will afford many hours of pleasant study.

MAJ. WARREN E. PORTER, MC, USA

SURGICAL SERVICE GUIDE, by *Louis T. Palumbo*, M.D., M.S., F.A.C.S. 208 pages; illustrated. Year Book Publishers, Inc., Chicago, Ill., 1959. Price $6.

In this compact, flexible-covered, pocket-size volume, the author has prepared a very useful publication on the fundamentals of diagnosis and management of many of the common surgical problems and conditions seen in patients admitted to any hospital or service. It represents the cumulative experience of the author and his associates over a period of many years. This book has particular value for the intern and the junior surgical resident who must become conversant with the basic principles of anesthesia, orders pertaining to the preoperative and postoperative management of the main surgical conditions, complications thereof, and the diagnostic procedures commonly performed. Two chapters are devoted to follow-up procedures and dietetics of special interest in general surgery. In the appendix is a convenient table of specific agents used in cancer chemotherapy, and one of normal blood chemistry values. For the senior surgeon who devotes part of his time to teaching rounds, this book provides a very convenient reference as a teaching guide. Although there is a certain variance among surgeons as to individual preferences on specific orders, the author has presented conservative and time-tested principles of management which are reliable and acceptable in most schools of surgery. Orders and instructions are listed in a clear and concise manner. Diagrams and illustrations are provided where essential for clarification. Gastrointestinal surgery is well covered for the elective and emergency conditions. Burns, shock, renal failure, and cerebrocranial injuries are discussed briefly, giving the basic essentials of management. The complications of acute adrenal insufficiency, diabetes, cardiac arrest, pulmonary atelectasis and results of incompatibility in blood transfusions are given special emphasis and discussion of their management. The chapter on pediatric surgery covers the principle pediatric surgical conditions, plus problems pertinent to fluid and electrolytes and other basic features. Gynecology is covered in a very general way, giving a few practical facts on examinations and tests. This book should be included in every medical library of hospitals participating in postgraduate surgical training. The general practitioner who does general surgery will find it a valuable and reliable guide. The reasonable price, the convenient size and binding of the book, and the direct and understandable composition of the text makes this a wise investment for any surgical resident starting his career in surgery. Most of the basic information contained herein will not be outdated for many years to come.

COL. ALAN B. EAKER, MC, USA

ABNORMAL HAEMOGLOBINS, A Symposium Organized by The Council for International Organizations of Medical Sciences. Edited by *J. H. P. Jonxis* and *J. F. Delafresnaye*. 427 pages; illustrated. Charles C Thomas, Publisher, Springfield, Ill., 1959. Price $9.50.

During the week 15–21 September 1957, the symposium on abnormal hemoglobins took place at Istanbul with participants from Europe, Asia, Africa and America. This book contains the papers and the discussions of the meeting. Nowadays the hemoglobin molecule is a lively area of investigation, and the topics of discussion reflect the wide diversity of disciplines brought to bear on the subject: biochemistry, genetics, epidemiology, anthropology and clinical medicine. Since the time of the meeting there have been many important advances in the field, but the book is an interesting milestone.

LT. COL. WILLIAM H. CROSBY, MC, USA

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New Books

Books received by the U.S. Armed Forces Medical Journal *are listed in this department for the information of readers, and as acknowledgment and appreciation of their receipt from the publishers. Those of greatest interest will be selected for review in a subsequent number of the* Journal.

Principles of Disability Evaluation, by *William Cauthorn Smith*, M.D. 210 pages. J. B. Lippincott Co., Philadelphia, Pa., 1959. Price $7.

Diagnosis of Congenital Heart Disease, A Clinical and Technical Study by the Cardiologic Team of the Pediatric Clinic, Karolinska Sjukhuset, Stockholm, by *Sven R. Kjellberg, Edgar Mannheimer, Ulf Rudhe* and *Bengt Jonsson*. 2d edition. 866 pages; illustrated. Year Book Publishers, Inc., Chicago, Ill., 1959. Price $28.

The Mouth. Its Clinical Appraisal, by *A. B. Rifle*, D.D.S. 118 pages; illustrated. J. B. Lippincott Co., Philadelphia, Pa., 1959. Price $3.50.

Intern's Manual (Cook County Hospital), by *Arthur Bernstein*, M.D. 2d edition. 308 pages. Year Book Publishers, Inc., Chicago, Ill., 1959. Price $3.

Nutritional Diagnosis, by *Grace A. Goldsmith*, B.S., M.D., M.S. (Med.), F.A.C.P. 164 pages. Charles C Thomas, Publisher, Springfield, Ill., 1959. Price $5.50.

Dictionary of Medical Slang and Related Esoteric Expressions, by *J. E. Schmidt*, Ph. D., B.S., M.D., Litt. D. 675 pages. Charles C Thomas, Publisher, Springfield, Ill., 1959. Price $6.75.

Cell, Organism and Milieu, edited by *Dorothea Rudnik*, with 12 contributors. 326 pages; illustrated. Ronald Press Co., New York, N.Y., 1959. Price $8.

Recreation In Total Rehabilitation, by *Josephine L. Rathbone*, Ph. D., and *Carol Lucas*, Ed. D. 398 pages. Charles C Thomas, Publisher, Springfield, Ill., 1959. Price $9.50.

The Physiology of the Newborn Infant, by *Clement A. Smith*, M.D. 3d edition. 497 pages; illustrated. Charles C Thomas, Publisher, Springfield, Ill., 1959. Price $12.50.

The Criminal Mind, A Study of Communication Between the Criminal Law and Psychiatry, by *Philip Q. Roche*, M.D. 299 pages. Grove Press, Inc., New York, N.Y., 1959. Price $1.95.

Synopsis of Ophthalmology, by *William H. Havener*, B.A., M.D., M.S. (Ophth.). 288 pages; illustrated. C. V. Mosby Co., St. Louis, Mo., 1959. Price $6.75.

Recent Progress in Oxytocin Research, by *B. Berde*, M.D. 110 pages; illustrated. Charles C Thomas, Publisher, Springfield, Ill., 1959. Price $4.75.

Mitral Valvulotomy, by *Harold J. Stewart*, M.D., and *Frank Glenn*, M.D. 244 pages; illustrated. Charles C Thomas, Publisher, Springfield, Ill., 1959. Price $10.50.

Evaluation of Changes Associated With Psychiatric Treatment, by *Marvin Reznikoff*, M.A., Ph D., and *Laura C. Toomey*, M.A. 132 pages. Charles C Thomas, Publisher, Springfield, Ill., 1959. Price $4.50.

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